8. HRVATSKI KONGRES STUDENATA DOKTORSKOG STUDIJA MOLEKULARNE BIOZNANOSTI

KNJIGA SAŽETAKA

Poštovane kolegice, poštovani kolege,

U ovim ekstremno izazovnim i nesigurnim vremenima COVID-19 pandemije, od izrazite je važnosti uska suradnja stručnjaka iz područja biomedicine, zdravstva te biotehničkih i prirodnih znanosti. Time do izražaja dolazi snaga koncepta našeg Studija molekularnih bioznanosti koji objedinjuje ta područja.

Učeći jedni od drugih stvaramo preduvjete za napredak znanosti u našoj akademskoj zajednici, a time i bolje sutra.

Sa zadovoljstvom Vam predstavljamo knjigu sažetaka 8. Hrvatskog kongresa studenata doktorskog studija Molekularne bioznanosti.

Zahvaljujemo svima Vama koji ste sudjelovali u organizaciji ovog kongresa, članovima organizacijskog i znanstvenog odbora. Posebno smo zahvalni Prof dr.sc. Veri Cesar kao idejnom začetniku kongresa, ali i na savjetima koji su doveli do njegove uspješne realizacije.

S poštovanjem,

Studenti 8. generacije doktorskog studija Molekularne bioznanosti

ORGANIZATOR / ORGANIZER

VIII. generacija studenata interdisciplinarnog poslijediplomskog studija Molekularne bioznanosti

Predsjednica organizacijskog odbora 8. Hrvatskog kongresa studenata Doktorskog studija Molekularne bioznanosti

prof. dr. sc. Vera Cesar, dipl. inž. biol.

ORGANIZACIJSKI ODBOR / ORGANISING COMMITTEE

Predsjednik organizacijskog odbora: Vera Cesar

Članovi: Paola Bajlo, Lara Barišić, Sven Bogdan, Zvonimir Bosnić, Željka Breškić Ćurić, Nevija Brstilo, Marlena Brstilo-Čičković, Josip Butković, Nina Čorak, Ivan Dilber, Emerik Galić, Martina Hrvačić, Ana Juras, Adela Klemenčić, Matilda Kovač Šižgorić, Alen Kovačević, Katja Kudrna Prašek, Martina Liović, Nikica Marinić, Manda Markanović, Sandra Mijač, Maja Miletić, Anamarija Mojzeš, Dora Muršić, Dino Pavoković, Mariana Penava, Marina Raboteg, Nikolina Rinčić, Livia Slišković, Goran Slivšek, Dragan Sljepčević, Andrea Šupe Parun, Sandra Šuto, Gordana Tomac, Karolina Veselski, Domagoj Vučić, Zorislava Živković

ZNANSTVENI ODBOR / SCIENTIFIC COMMITTEE

Predsjedica znanstvenog odbora: Ana Petrović

Članovi: Martina Abramović, Zoran Bakotić, Zoran Barušić, Iva Bazina, Davor Bilandžić, Adriana Bobinec, Anita Breški, Katica Cvitkušić Lukenda, Damir Ćaćić, Josipa Ćosić, Matea Dozet, Anica Džajić, Danilo Gardijan, Kristina Glavaš, Stjepan Grga Milanković, Sonja Jaman, Martina Juzbašić, Dora Karmelić, Josip Kocur, Katarina Komar Milas, Irena Krajina Kmoničeк, Sandra Lea Lucić, Davor Lešić, Luka Malenica, Ana Maria Soldo, Ana-Maria Meašić, Martina Morić-Perić, Fran Novak, Margareta Pernar, Ana Petrović, Anita Pokupec Bilić, Ana Posavec, Josipa Pulić, Leona Radmanić, Vjeran Rapan, Robert Rončević, Anamarija Salar, Igor Salopek, Mira Stipčević, Christine Supina, Petra Šimičić, Matej Tomas, Anja Tomić, Hrvoje Tucaković, Marina Vidosavljević

PROGRAM KONGRESA

8.00 – 9.00		REGISTRACIJA SUDIONIKA, POSTAVLJANJE POSTERA SEKCIJE PA "BIOZNANOST"
9.00 – 9.05		OTVARANJE KONGRESA
9.05 – 9.45	**prof.dr.sc. Neven Žarković**	PLENARNO PREDAVANJE; PREDSTAVLJANJE NAJBOLJIH URADAKA IZ PREDMETA PROJEKTNI MENADŽMENT (PREZENTACIJE STUDENATA)
9:45 – 10:45	Usmene prezentacije „AKUTNA I PSIHIJATRIJSKA STANJA"	
9:45 – 9:55	**Adela Klemenčić**	UTJECAJ HORMONALNOG STATUSA I FAZE MENSTRUALNOG CIKLUSA NA PSIHOPATOLOGIJU U AKUTNO ZAPRIMLJENIH SHIZOFRENIH PACIJENTICA
9:55 – 10:05	**Dragan Sljepčević**	PRIKAZ SLUČAJA ZBRINJAVANJA MASOVNOG TROVANJA HRANOM - POGLED IZ OHBP-A
10:05 – 10:15	**Igor Salopek**	MOBILNI PSIHIJATRIJSKI TIM U PRISTUPU OSOBI OBOLJELOJ OD SHIZOFRENIJE – PRIKAZ SLUČAJA
10:15 – 10:25	**Damir Ćaćić**	PRISTUP I ZBRINJAVANJE MOŽDANOG UDARA U VANBOLNIČKOJ HITNOJ MEDICINSKOJ SLUŽBI
10:25 – 10:35	**Zoran Barušić**	OSPICE
10:35 – 10:45		RASPRAVA
10.45 – 11.30		POSTER SEKCIJA PA "BIOZNANOSTI" (TABLICA 1)
11.30 – 12.00		PAUZA
12:00 – 13:00	Usmene prezentacije „BIOMEDICINA I BIOLOGIJA"	
12:00 – 12:10	**Nina Čorak**	RAČUNALNO ISTRAŽIVANJE VEZANJA STRUKTURNIH DERIVATA AZITROMICINA U PEPTIDIL-TRANSFERAZNI CENTAR VELIKE PODJEDINICE RIBOSOMA BAKTERIJE ESCHERICHIA COLI
12:10 – 12:20	**Nikolina Rinčić**	CHIP-SEQ ANALIZA CILJNIH GENA PROTEINA GLI
12:20 – 12:30	**Davor Bilandžić**	UTJECAJ KOMORBIDITETA I PRIMIJENJENIH LIJEKOVA NA TRAJANJE NEUROMUSKULARNE BLOKADE
12:30 – 12:40	**Sven Bogdan**	MAHOVINE KAO BIOINDIKATORI TALOŽENJA TEŠKIH METALA
12:40 – 12:50	**Josip Butković**	IZRAŽAJ TFF1 I TFF3 GENA I PROTEINA JE PROMJENJEN KOD BOLESNIKA OBOLJELIH OD KRONIČNOG RINOSINUITISA S NOSNOM POLIPOZOM TE POVEZAN SA BAKTERIJSKOM KOLONIZACIJOM NOSNE SLUZNICE
12:50 – 13:00		RASPRAVA

13:00 – 14:00	Usmene prezentacije „KARDIOVASKULARNI I RESPIRATORNI SUSTAV“	
13:00 – 13:10	**Zoran Bakotić**	ODVOD V4R KOD ST ELEVACIJSKOG INFARKTA MIOKARDA-KARIKA KOJA NEDOSTAJE
13:10 – 13:20	**Katica Cvitkušić Lukenda**	REZULTATI KATETERSKE ABLACIJE U LABORATORIJU MALOG VOLUMENA
13:20 – 13:30	**Željka Breškić Ćurić**	UTJECAJ KONZUMACIJE KOKOŠJIH JAJA OBOGAĆENIH OMEGA-3 MASNIM KISELINAMA NA FUNKCIJU KARDIO-IMUNO-VASKULARNOG SUSTAVA KOD BOLESNIKA S POZNATOM ATEROSKLEROTSKOM BOLESTI EKORONARNIH ARTERIJA - PRELIMINARNI REZULTATI
13:30 – 13:40	**Stjepan Grga Milanković**	POVEZANOST RESPIRACIJSKE FUNKCIJE KOD MEHANIČKI VENTILIRANIH BOLESNIKA U JEDINICI INTENZIVNOG LIJEČENJA I RAZINE SERUMSKOG KREATININA
13:40 – 13:50	**Domagoj Vučić**	ISTRAŽIVANJE ANIMALNOG MODELA KARDIOPROTEKCIJE INHALACIJSKIM ANESTETICIMA: STRUČNI ČLANAK
13:50 – 14:00		RASPRAVA
14:00 – 15:15		PAUZA (RUČAK) + SKIDANJE POSTERA SEKCIJA PA I POSTAVLJANJE POSTERA SEKCIJE PB **„KLINIČKA MEDICINA“**
15:15 – 16:15	Usmene prezentacije „ONKOLOGIJA I BIOLOGIJA TUMORA“	
15:15 – 15:25	**Zorislava Živković**	PROTUTUMORSKI UČINCI NOVIH DERIVATA KUMARINA NA STANICE TUMORA DEBELOG CRIJEVA IN VITRO
15:25 – 15:35	**Martina Abramović**	ANALIZA PRISUTNOSTI TFF3 PROTEINA U LUMINAL B TIPU KARCINOMA DOJKE PRIJE I NAKON KEMOTERAPIJE
15:35 – 15:45	**Sandra Lea Lucić**	UTJECAJ RENIN-ANGIOTENSIN-ALDOSTERON SUSTAVA NA METABOLIZAM GLUKOZE KOD INCIDENTALOMA NADBUBREŽNE ŽLIJEZDE
15:45 – 15:55	**Anamarija Mojzeš**	STANIČNO SPECIFIČNI METABOLIČKI ODGOVOR STANICA KARCINOMA NA KURKUMIN
15:55 – 16:05	**Margareta Pernar**	ODREĐIVANJE KLJUČNE(IH) MIRNA U SVRHU REGULIRANJA LIJEKOM POTAKNUTE EPITELNO-MEZENHIMALNE TRANZICIJE
16:05 – 16:15		RASPRAVA
16:15 – 17:00		POSTER SEKCIJA PB **„KLINIČKA MEDICINA“** (TABLICA 2)

17:00 – 17:15	PAUZA
17:15 – 19:00	RASPRAVA, ZATVARANJE KONGRESA, UPIS OCJENA

TABLICA 1

SEKCIJA PA "BIOZNANOSTI" 10:45 – 11:30	
PP01	Lara Barišić FIZIOLOŠKI I BIOKEMIJSKI UČINAK SREBRA NA VODENU LEĆU LEMNA GIBBA L .: PROCJENA KOMERCIJALNO DOSTUPNOG PROIZVODA KOJI SADRŽI KOLOIDNO SREBRO
PP02	Josipa Ćosić UČINAK KADMIJA NA METABOLIZAM GLUTATIONA U TRI KULTIVARA SOJE (GLYCINE MAX L.)
PP03	Marina Raboteg VRIJEME CVJETANJA I STERILNOST CVJETOVA RAZLIČITIH SORTI MASLINA
PP04	Kristina Glavaš HISTOLOŠKA ANALIZA GLIKOGENA U HEPATOCITIMA MIŠEVA KOJIMA SU ISKLJUČENI TFF2 I TFF3 GENI
PP05	Ana Posavec RAZNOLIKOST SLABIH TKIVNIH ANTIGENA HA-1, HA-2 I HA-8 U HRVATSKOJ POPULACIJI
PP06	Katarina Komar Milas UTJECAJ PUŠENJA NA ZDRAVLJE USNE ŠUPLJINE; ZNANJE I STAJALIŠTA STOMATOLOGA I STUDENATA STOMATOLOGIJE
PP07	Anica Džajić BIOMARKERI ALERGIJE U DJECE PREOSJETLJIVE NA ALERGEN DACTILIS GLOMERATA U SEZONI CVJETANJA RDOBRADE
PP08	Zvonimir Bosnić PROCJENA NUTRITIVNOG STANJA OSOBA STARIJE DOBI U AMBULANTI OBITELJSKE MEDICINE S OBZIROM NA ANTROPOMETRIJSKE MJERE I KOMORBIDITET
PP09	Adriana Bobinec SEKVENCIRANJE SLJEDEĆE GENERACIJE U NOVOROĐENČADI S KOLODIJSKOM MEMBRANOM
PP10	Sonja Jaman POVEZANOST HLA-DRB1 ALELA SA POJAVOM ORALNOG LIHEN PLANUSA U PACIJENATA SA PODRUČJA JUŽNE HRVATSKE
PP11	Iva Bazina UČINCI STRESA ENDOPLAZMATSKOG RETIKULUMA U JETRI MIŠEVA S NEDOSTATKOM TREFOIL FACTOR FAMILY 3 PROTEINA

PP12	Christine Supina KOMBINIRANI UTJECAJ CILENGITIDA I PAKLITAKSELA NA STANIČNE LINIJE TROSTRUKO NEGATIVNOG TUMORA DOJKE I MELANOMA
PP13	Sandra Šuto KARAKTERIZACIJA OXA-48 PRODUCIRAJUĆIH SOJEVA BAKTERIJE KLEBSIELLA PNEUMONIAE IZOLIRANIH IZ MOKRAĆE IZVANBOLNIČKIH PACIJENATA U ZAGREBU
PP14	Goran Slivšek POVEZANOST ODABRANIH JEDNONUKLEOTIDNIH POLIMORFIZAMA GENA UKLJUČENIH U METABOLIZAM FOLATA S PRIROĐENIM SRČANIM GREŠKAMA U OSOBA S DOWNOVIM SINDROMOM
PP15	Sandra Mijač RAZLIKE U NAGIBU STRAŽNJEG ZIDA ZGLOBNE KVRŽICE IZMEĐU SREDNJOVJEKOVNE I SUVREMENE LJUDSKE POPULACIJE U HRVATSKOJ
PP16	Anita Breški RAZLIKE U PROCJENI DIOBE STANICA RAKA DOJKE IMUNOHISTOKEMIJSKIM BOJENJEM JEZGRINA KI67 ANTIGENA
PP17	Anamarija Salar UNUTARTUMORSKA HETEROGENOST MIKROSATELITNE NESTABILNOSTI (MSI I EMAST) SPORADIČNIH KARCINOMA DEBELOG CRIJEVA
PP18	Alen Kovačević KARAKTERIZACIJA CIJELOG GENOMA REASORTANTA GENOTIPA G3P[8] ROTAVIRUSA A SLIČNIH KONJSKIM SOJEVIMA U HOSPITALIZIRANE DJECE U HRVATSKOJ
PP19	Marina Vidosavljević ARSEN U KOSI STANOVNIKA ISTOČNE HRVATSKE
PP20	Fran Novak DISTRIBUCIJA HLA-DRB1 ALELA POVEZANIH SA POJAVOM REUMATOIDNOG ARTRITISA U SPLITSKO-DALMATINSKOJ ŽUPANIJI
PP21	Nikica Marinić UČINAK NEAROMATSKOG NAFTALANA NA METABOLIČKU I PROLIFERACIJSKU AKTIVNOST HACAT STANICA
PP22	Vjeran Rapan UČINAK LIJEČENJA OSTEOARTRITISA KOLJENSKOG ZGLOBA PRIMJENOM MATIČNIH STANICA - RANI REZULTATI
PP23	Emerik Galić PRIMJENA PEKTINA IZ KORE MANDARINE (C. RETICULATA) U BIOGENOJ SINTEZI SELENOVIH NANOČESTICA
PP24	Manda Markanović BRZA IDENTIFIKACIJA PATOGENA IZ POZITIVNIH HEMOKULTURA UPOTREBOM METODE FILMARRAY
PP25	Nevija Brstilo GAMMA NOŽ
PP26	Martina Juzbašić AUGMENTACIJA ALVEOLARNE KOSTI INJEKCIJSKIM BIOMATERIJALIMA
PP27	Matea Dozet PERIOPERACIJSKI POSTUPCI (TROMBOPROFILAKSA) KOD PACIJENATA KOJI UZIMAJU DIREKTNE ORALNE ANTIKOAGULANSE U ORALNOJ KIRURGIJI
PP28	Matej Tomas PRELIMINARNA HISTOLOŠKA ANALIZA DVA BIOMATERIJALA NAKON PREZERVACIJE ALVEOLE

PP29	Dora Karmelić QUADRATUS LUMBORUM BLOK – BOLJI NEPOREDNI ISHOD PACIJENATA PODVRGNUTIH OPERACIJAMA NA ABDOMENU

TABLICA 2

SEKCIJA PB "KLINIČKA MEDICINA" 16:15 – 17:00	
PP30	Martina Liović PRIKAZ HITNOG OFTALMOLOŠKOG PACIJENTA
PP31	Karolina Veselski HAMARTOM LARINKSA – PRIKAZ SLUČAJA
PP32	Andrea Šupe Parun PRIKAZ REZULTATA PROVEDBE NACIONALNOG PROGRAMA RANOG OTKRIVANJA RAKA DOJKE, 2006.-2016. GODINA
PP33	Mira Stipčević EFUZIVNO-KONSTRIKTIVNI PERIKARDITIS KAO KASNA KOMPLIKACIJA ENDOMIOKARDIJALNE BIOPSIJE
PP34	Ana-Maria Meašić 5.5-GODIŠNJI DJEČAK S DE NOVO SLOŽENOM 2Q3 KROMOSOMSKOM PRERASPODJELOM
PP35	Leona Radmanić PROMJENE STADIJA FIBROZE I STEATOZE U BOLESNIKA S KRONIČNIM HEPATITISOM C KOJI SU LIJEČENI DIREKTNO DJELUJUĆIM ANTIVIRUSNIM LIJEKOVIMA I POSTIGLI TRAJNI VIROLOŠKI ODGOVOR
PP36	Gordana Tomac TEŠKO INTRAKRANIJSKO KRVARENJE USLIJED NEONATALNE ALOIMUNE TROMBOCITOPENIJE UZROKOVANE ANTI-HPA-1B PROTUTIJELOM
PP37	Petra Šimičić VIROLOŠKI RELAPS NAKON LIJEČENJA BOLESNICE INFICIRANE HCV-OM GENOTIPA 3A I MUTACIJOM Y93H S GLECAPREVIROM/PIBRENTASVIROM
PP38	Maja Miletić ILEUS TANKOG CRIJEVA UZROKOVAN ENTEROLITOM BEZ DOKAZA KOLECISTOENTERIČNE FISTULE. PRIKAZ SLUČAJA.
PP39	Anita Pokupec Bilić DVOSTRUKA TRISOMIJA U TRUDNOĆI
PP40	Irena Krajina Kmoniček PERIOPERACIJSKO LIJEČENJE ISHEMIJSKE BOLI KOD OVISNIKA-MULITIMODALNI PRISTUP

PP41	Ana Juras KOINFEKCIJA POLIOMAVIRUSA S CITOMEGALOVIRUSOM I VIRUSOM EPSTEIN-BARR U ALOGENIH PRIMATELJA TRANSPLANTACIJE KRVOTVORNIH MATIČNIH STANICA - PRVA STUDIJA IZ HRVATSKE
PP42	Paola Bajlo PLUĆNA EMBOLIJA U OBJEDINJENOM HITNOM PRIJAMU
PP43	Martina Morić Perić USPOREDBA SPLENEKTOMIJE I RITUKSIMABA U DRUGOJ LINIJI LIJEČENJA REFRAKTORNE IMUNOTROMBOCITOPENIJE
PP44	Robert Rončević ISHODI BUBREŽNOG PRESAĐIVANJA U KLINIČKOM BOLNIČKOM CENTRU OSIJEK
PP45	Mariana Penava HEMATOLOŠKE POJAVE KOD ALKOHOLIZMA
PP46	Marlena Brstilo-Čičković POJAVNOST KRIŽOBOLJE U OPĆOJ POPULACIJI STAROSTI OD 20 DO 30 GODINA NA PODRUČJU VIROVITIČKO-PODRAVSKE ŽUPANIJE
PP47	Katja Kudrna Prašek VRIJEME KOJE PROĐE OD PRIJEMA DO DAVANJA ANTIBIOTIKA- MOŽEMO LI BITI BOLJI?
PP48	Josip Kocur PLUĆNA KONTUZIJA NAKON TUPE TRAUME PRSIŠTA: KLINIČKI ZNAČAJ I EVALUACIJA ZBRINJAVANJA PACIJENATA
PP49	Luka Malenica POVEZANOST ZDRAVSTVENE PISMENOSTI SA ZNANJEM I STAVOVIMA O PRIMARNOJ KEMOPREVENCIJI RAKA DOJKE U POPULACIJI ŽENA BEZ RAKA DOJKE
PP50	Dora Muršić ISHODI OPERACIJSKOG LIJEČENJA TRAUMATSKIH OZLJEDA TORAKOLUMBALNOG SEGMENTA KRALJEŽNICE
PP51	Ana Maria Soldo PRIKAZ SLUČAJNOG OTROVANJA KLOROVODIČNOM KISELINOM
PP52	Martina Hrvačić UČESTALOST HEMOLITIČKE BOLESTI FETUSA I NOVOROĐENČADI U KBC-U ZAGREB U RAZDOBLJU OD 2007. DO 2010.
PP53	Josipa Pulić LANAC PREŽIVLJENJA
PP54	Matilda Kovač Šižgorić POGREŠNA DIJAGNOZA EPILEPSIJE JE ČESTA - KOLIKO ČESTA U DJECE ?
PP55	Livia Slišković KLINIČKO-TOKSIKOLOŠKA MREŽA KOD SUMNJE NA INTOKSIKACIJU NOVIM PSIHOAKTIVNIM TVARIMA U SKLOPU PROJEKTA I-SEE
PP56	Hrvoje Tucaković REPLANTACIJA I REVASKULARIZACIJA UMJESTO REAMPUTACIJE KOD TEŠKIH TRAUMA ŠAKE: SERIJA SLUČAJEVA
PP57	Danilo Gardijan SIGURNOST STENTIRANJA KAROTIDNE ARTERIJE BEZ PROTEKCIJE – ISKUSTVO JEDNOG CENTRA
PP58	Ana Petrović PRIJAVLJIVANJE NUSPOJAVA KOD KRONIČNIH BOLESNIKA
PP59	Anja Tomić

	OSOBITOSTI BOLESTI ŠTITNJAČE U DJEČJOJ DOBI
PP60	Davor Lešić POVEZNICA IZMEĐU FIZIČKE AKTIVNOSTI I KVALITETE ŽIVOTA U ŽENA STARIJE DOBI
PP61	Dino Pavoković EPILEPSIJA U DJECE S NEUROFIBROMATOZOM TIP 1
PP62	Ilija Gutleša SENTIMAG BIOPSIJA ČVORA ČUVARA U POŠTEDNOM KIRURŠKOM LIJEČENJU KARCINOMA DOJKE - PRELIMINARNI REZULTATI
PP63	Iva Bošnjak DEPRESIVNI POREMEĆAJ KOD OSOBA STARIJE ŽIVOTNE DOBI
PP64	Ivan Dilber PROTUTUMORSKI UTJECAJ SISTEMSKE DNAZE I I PROTEAZA U IN VIVO MODELU

SEKCIJA 1A	„AKUTNA I PSIHIJATRIJSKA STANJA“ Predsjedavajući: L. Malenica, S. L. Lucić	
9:45-9:55	UP01	Adela Klemenčić UTJECAJ HORMONALNOG STATUSA I FAZE MENSTRUALNOG CIKLUSA NA PSIHOPATOLOGIJU U AKUTNO ZAPRIMLJENIH SHIZOFRENIH PACIJENTICA
9:55-10:05	UP02	Dragan Sljepčević PRIKAZ SLUČAJA ZBRINJAVANJA MASOVNOG TROVANJA HRANOM - POGLED IZ OHBP-A
10:05-10:15	UP03	Igor Salopek MOBILNI PSIHIJATRIJSKI TIM U PRISTUPU OSOBI OBOLJELOJ OD SHIZOFRENIJE – PRIKAZ SLUČAJA
10:15-10:25	UP04	Damir Ćaćić PRISTUP I ZBRINJAVANJE MOŽDANOG UDARA U VANBOLNIČKOJ HITNOJ MEDICINSKOJ SLUŽBI
10:25-10:35	UP05	Zoran Barušić OSPICE
SEKCIJA 1B	„BIOMEDICINA I BIOLOGIJA“ Predsjedavajući: A. Tomić, R. Rončević	
12:00-12:10	UP06	Nina Čorak RAČUNALNO ISTRAŽIVANJE VEZANJA STRUKTURNIH DERIVATA AZITROMICINA U PEPTIDIL-TRANSFERAZNI CENTAR VELIKE PODJEDINICE RIBOSOMA BAKTERIJE ESCHERICHIA COLI
12:10-12:20	UP07	Nikolina Rinčić CHIP-SEQ ANALIZA CILJNIH GENA PROTEINA GLI
12:20-12:30	UP08	Davor Bilandžić UTJECAJ KOMORBIDITETA I PRIMIJENJENIH LIJEKOVA NA TRAJANJE NEUROMUSKULARNE BLOKADE
12:30-12:40	UP09	Sven Bogdan MAHOVINE KAO BIOINDIKATORI TALOŽENJA TEŠKIH METALA

12:40-12:50	UP10	Josip Butković IZRAŽAJ TFF1 I TFF3 GENA I PROTEINA JE PROMJENJEN KOD BOLESNIKA OBOLJELIH OD KRONIČNOG RINOSINUITISA S NOSNOM POLIPOZOM TE POVEZAN SA BAKTERIJSKOM KOLONIZACIJOM NOSNE SLUZNICE
SEKCIJA 1C	„KARDIOVASKULARNI I RESPIRATORNI SUSTAV“ Predsjedavajći: I. Salopek, D. Ćaćić	
13:00-13:10	UP11	Zoran Bakotić ODVOD V4R KOD ST ELEVACIJSKOG INFARKTA MIOKARDA-KARIKA KOJA NEDOSTAJE
13:10-13:20	UP12	Katica Cvitkušić Lukenda REZULTATI KATETERSKE ABLACIJE U LABORATORIJU MALOG VOLUMENA
13:20-13:30	UP13	Željka Breškić Ćurić UTJECAJ KONZUMACIJE KOKOŠJIH JAJA OBOGAĆENIH OMEGA-3 MASNIM KISELINAMA NA FUNKCIJU KARDIO-IMUNO-VASKULARNOG SUSTAVA KOD BOLESNIKA S POZNATOM ATEROSKLEROTSKOM BOLESTI EKORONARNIH ARTERIJA - PRELIMINARNI REZULTATI
13:30-13:40	UP14	Stjepan Grga Milanković POVEZANOST RESPIRACIJSKE FUNKCIJE KOD MEHANIČKI VENTILIRANIH BOLESNIKA U JEDINICI INTENZIVNOG LIJEČENJA I RAZINE SERUMSKOG KREATININA
13:40-13:50	UP15	Domagoj Vučić ISTRAŽIVANJE ANIMALNOG MODELA KARDIOPROTEKCIJE INHALACIJSKIM ANESTETICIMA: STRUČNI ČLANAK
SEKCIJA 1D	„ONKOLOGIJA I BIOLOGIJA TUMORA“ Predsjedavajući: S. G. Milanković, D. Karmelić	
15:15-15:25	UP16	Zorislava Živković PROTUTUMORSKI UČINCI NOVIH DERIVATA KUMARINA NA STANICE TUMORA DEBELOG CRIJEVA IN VITRO
15:25-15:35	UP17	Martina Abramović ANALIZA PRISUTNOSTI TFF3 PROTEINA U LUMINAL B TIPU KARCINOMA DOJKE PRIJE I NAKON KEMOTERAPIJE
15:35-15:45	UP18	Sandra Lea Lucić UTJECAJ RENIN-ANGIOTENSIN-ALDOSTERON SUSTAVA NA METABOLIZAM GLUKOZE KOD INCIDENTALOMA NADBUBREŽNE ŽLIJEZDE
15:45-15:55	UP19	Anamarija Mojzeš STANIČNO SPECIFIČNI METABOLIČKI ODGOVOR STANICA KARCINOMA NA KURKUMIN
15:55-16:05	UP20	Margareta Pernar ODREĐIVANJE KLJUČNE(IH) MIRNA U SVRHU REGULIRANJA LIJEKOM POTAKNUTE EPITELNO-MEZENHIMALNE TRANZICIJE

SADRŽAJ/CONTENT

PREDAVANJA/LECTURE

AKUTNA I PSIHIJATRIJSKA STANJA/ACUTE AND PSYCHIATRIC DISORDERS..... 2

Influence of hormonal status and menstrual cycle phase on psychopathology in acute admitted patients with schizophrenia 3

Prikaz slučaja zbrinjavanja masovnog trovanja hranom - Pogled iz objedinjenog hitnog bolničkog prijema 4

Mobilni psihijatrijski tim u pristupu osobi oboljeloj od shizofrenije – Prikaz slučaja 5

Assessment and stroke treatment in prehospital emergency medical services 6

Ospice 7

BIOMEDICINA I BIOLOGIJA/BIOMEDICINE AND BIOLOGY 8

Računalno istraživanje vezanja strukturnih derivata azitromicina u peptidil-transferazni centar velike podjedinice ribosoma bakterije *Escherichia coli* 9

ChIP-seq analysis of target genes regulated by GLI proteins 10

Utjecaj komorbiditeta i primijenjenih lijekova na trajanje neuromuskularne blokade 11

Mosses as a bioindicator of a heavy metal pollution 12

TFF1 and TFF3 gene and proteins are differentially expressed in patients suffering from chronic rhinosinusitis with nasal polyposis and linked to bacterial colonization of nasal mucosa 13

KARDIOVASKULARNI I RESPIRATORNI SUSTAV/CARDIOVASCULAR AND RESPIRATORY SYSTEM 14

Lead V4R in inferior st elevation myocardial infarction. A missing piece of puzzle 15

Catheter ablation results in low volume laboratory 16

Utjecaj konzumacije kokošjih jaja obogaćenih omega-3 masnim kiselinama na funkciju kardio-imuno-vaskularnog sustava kod bolesnika s poznatom aterosklerotskom bolesti koronarnih arterija – preliminarni rezultati 17

A correlation of respiratory function in the mechanically ventilated patients in the intensive care unit and serum creatinine levels 18

Investigation of an animal model of cardioprotection induced by inhalational anesthetics: Expert article 19

ONKOLOGIJA I BIOLOGIJA TUMORA/ONCOLOGY AND TUMOR BIOLOGY 20

Antitumor effects of new coumarin derivatives on colon. Tumor cells *in vitro* 21

Analysis of the presence of tff3 protein in luminal b type. Breast cancer before and after chemotherapy 22

Utjecaj renin-angiotensin-aldosteron sustava na metabolizam glukoze kod incidentaloma nadbubrežne žlijezde 23

Cell-type specific metabolic response of cancer cells to curcumin 24

Određivanje ključne(ih) miRNA u svrhu reguliranja lijekom potaknute epitelno-mezenhimalne tranzicije 25

POSTER PREZENTACIJE/POSTER PRESENTATIONS

BIOZNANOSTI/BIOSCIENCE 27

Fiziološki i biokemijski učinak srebra na vodenu leću *LEMNA GIBBA* L .: Procjena komercijalno dostupnog proizvoda koji sadrži koloidno srebro 28

Effect of cadmium on glutathione metabolism in three soybean cultivars (*GLYCINE MAX* L.) .. 29

Flowering phenology and flower quality of different olive cultivars 30

Histological analysis of glycogen content in hepatocytes of trefoil factor family 2 and trefoil factor family 3 knock.out mice 31

Polymorphism of minor histocompatibility antigens HA-1, HA-2 AND HA-8 in the croatian population 32

Impact of smoking on oral health: knowledge and attitudes of dentists and dental students . 33

Biomarkeri alergije u djece preosjetljive na alergen *Dactilis glomerata u* sezoni cvjetanja rdobrade 34

Procjena nutritivnog stanja osoba starije dobi u ambulanti obiteljske medicine s obzirom na antropometrijske mjere i komorbiditet 35

Next generation sequencing in neonates presenting with collodion baby syndrome 36

Association of HLA-DRB1 alleles with oral lichen planus (OLP) in Southern Croatia region 37

Effects of endoplasmic reticulum stress in the liver of trefoil factor family 3 protein deficient mice 38

Kombinirani utjecaj cilengitida i paklitaksela na stanične linije trostruko negativnog tumora dojke i melanoma 39

Karakterizacija OXA-48 producirajućih sojeva bakterije *KLEBSIELLA PNEUMONIAE* izoliranih iz mokraće izvanbolničkih pacijenata u Zagrebu 40

Polymorphisms in folate pathway genes as risk factors for congenital heart defects in down syndrome 41

Differences in articular-eminence inclination between medieval and contemporary human populations in Croatia 42

Variation in breast carcinoma cell proliferation assessment according to immunohistochemical nuclear antigen Ki67 staining 43

Unutartumorska heterogenost mikrosatelitne nestabilnosti (MSI I EMAST) sporadičnih karcinoma debelog crijeva 44

Karakterizacija cijelog genoma reasortanta genotipa G3P[8] rotavirusa sličnih konjskim sojevima u hospitalizirane djece u hrvatskoj 45

Arsen u kosi stanovnika istočne Hrvatske 46

Distribution of HLA-DRB1 alleles associated with rheumatoid arthritis in Split-Dalmatia Country in Southern Croatia 47

Učinak nearomatskog naftalana na metaboličku i proliferacijsku aktivnost HaCaT stanica 48

The effect of treatment of knee joint osteoarthritis using stem cells - early results 49

Application of mandarin *(C. reticulata)* peel pectins in biogenic synthesis of selenium nanoparticles 50

Rapid identification of pathogens from positive blood cultures by use of the filmarray blood culture identification panel 51

Gamma nož 52

Alveolar bone augmentation by injectable biomaterials 53

Perioperative management (thromboprophylaxis) of patients receiving direct oral anticoagulants in dentoalveolar surgery 54

Preliminarna histološka analiza dva biomaterijala nakon prezervacije alveole 55

QUADRATUS LUMBORUM BLOCK - better immediate patient outcome in abdominal surgery 56

***KLINIČKA MEDICINA/CLINICAL MEDICINE*..... 57**

Prikaz hitnog oftalmološkog pacijenta 58

Laryngeal hamartoma – Case report 59

Prikaz rezultata provedbe nacionalnog programa ranog otkrivanja raka dojke, 2006.-2016. godina 60

Effusive-constrictive pericarditis as late complication of endomyocardial biopsy 61

A 5.5-year old boy with a *de novo* complex 2Q3 chromosomal rearrangement 62

Promjene stadija fibroze i steatoze u bolesnika s kroničnim hepatitisom C koji su liječeni direktno djelujućim antivirusnim lijekovima i postigli trajni virološki odgovor 63

Severe intracranial haemorrhage in neonatal alloimmune thrombocytopenia caused by ANTI-HPA-1b antibody 64

Virološki relaps nakon liječenja bolesnice inficirane HCV-OM genotipa 3A i mutacijom Y93H s glecaprevirom/pibrentasvirom 65

Ileus tankog crijeva uzrokovan enterolitom bez dokaza kolecistoenterične fistule. Prikaz slučaja. 66

Double trisomy in second trimester of pregnancy 67

Perioperative ischemic pain management in drug addicts-mulitimodal approach 68

Co-infection of polyomaviruses with Cytomegalovirus and Epstein-Barr virus in allogeneic hematopoietic stem cell transplant recipients – the first surveillance study from Croatia 69

Plućna embolija u objedinjenom hitnom prijamu 70

Splenectomy in comparison with rituximab as a second line treatment for refractory immune thrombocytopenia (ITP) 71

Ishodi bubrežnog presađivanja u Kliničkom bolničkom centru Osijek 72

Hematološke pojave kod alkoholizma 73

Pojavnost križobolje u općoj populaciji starosti od 20 do 30 godina na području Virovitičko-podravske županije (VPŽ) 74

Time from admission to administration of antibiotics- can we do better? 75

Pulmonary contusions after blunt chest trauma: Clinical significance and evaluation of patient management 76

Association of health literacy with knowledge and attitudes about breast cancer chemoprevention among women without breast cancer 77

Surgical treatment outcomes of traumatic thoracolumbar spine injuries 78

Prikaz slučajnog otrovanja klorovodičnom kiselinom 79

Učestalost hemolitičke bolesti fetusa i novorođenčadi u KBC-u Zagreb u razdoblju od 2007. do 2010. 80

The chain of survival 81

Misdiagnosis of epilepsy is often-how often in children ? 82

Clinical-toxicology network in suspected new psychoactive substance (NPS) Intoxications as a part of I-SEE PROJECT 83

Replantacija i revaskularizacija umjesto reamputacije kod teških trauma šake: serija slučajeva 84

Safety of nonprotected carotid artery stenting – A single-center experience 85

Reporting adverse drug reactions by patients treated for chronic diseases 86

Characteristics of thyroid disease in pediatric population 87

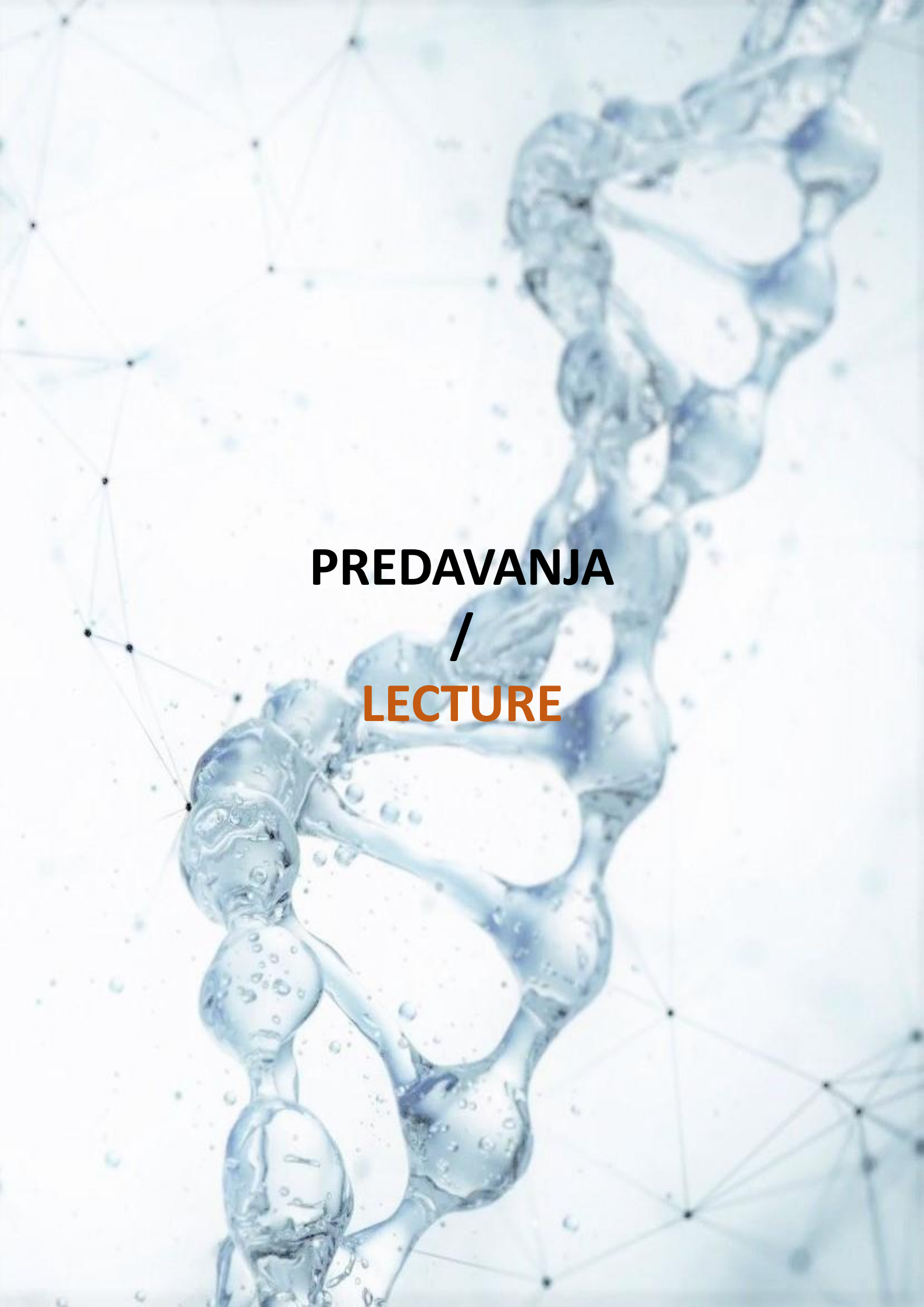
Association between physical activity and quality of life in older female adults 88

Epilepsija u djece s Neurofibromatozom tip 1 89

Antitumor effects of systemic DNAse I and proteases in an *in vivo* model 90

Sentimag biopsija čvora čuvara u poštednom kirurškom liječenju karcinoma dojke-Preliminarni rezultati 91

Depresivni poremećaj kod osoba starije životne dobi 92



PREDAVANJA
/
LECTURE

AKUTNA I PSIHIJATRIJSKA STANJA
/
ACUTE AND PSYCHIATRIC DISORDERS

UTJECAJ HORMONALNOG STATUSA I FAZE MENSTRUALNOG CIKLUSA NA PSIHOPATOLOGIJU U AKUTNO ZAPRIMLJENIH SHIZOFRENIH PACIJENTICA

INFLUENCE OF HORMONAL STATUS AND MENSTRUAL CYCLE PHASE ON PSYCHOPATH OLOGY IN ACUTE ADMITTED PATIENTS WITH SCHIZOPHRENIA

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Introduction: The gender differences in onset, symptoms' severity and outcome of schizophrenia are now thought to support the hypothesis that sex hormones may also have a role in the ethiology, as well as treatment of schizophrenia. A number of reproductive hormones may be implicated, including testosterone, progesterone or luteinising hormone, thus it is important to acknowledge that there is a complex interplay of hormones occurring.
Aim: The aim of the study was to highlight the effect of the menstrual cycle and sex hormones on female patients with schizophrenia.
Materials and methods: The sample consisted of 31 consecutively acute admitted women, aged 18 to 45 years, with schizophrenia diagnosed by DSM-5 criteria. The sample consisted of women who were regulary menstruating and were undergoing regular hormonal fluxes. Each subject was enrolled and received psychopathology and hormone (estradiol, progesterone, testosterone) assessments. Psychopathology was measured with Positive end Negative Syndrome Scale (PANSS). The subjects were divided into follicular (high estrogen) and luteal (low estrogen) phase admissions. Data were analyzed by regression analysis and t-test for independent samples. Values were given as means ±SD.
Results: There were no differences between the follicular and lutal phase admission groups in regard to age, duration of illness and age of illness onset. We found that significantly more women were admitted during the luteal (low estrogen) phase of menstrual cycle (68%) in comparison to follicular (high estrogen) phase (32%).
Conclusion: In conclusion, this study showed that there was a significant increase in hospital admissions in the luteal phase of menstrual cycle in women suffering from exacerbation of schizophrenia. The influence of particulary sex hormones (estrogen, progesterone and testosterone) on admission rate and clinical psychopathology was found insignificant.

Keywords: *schizophrenia, women, hormonal status, psychopathology*

Ključne riječi: *shizofrenija, žene, hormonalni status, psihopatologija*

PRIKAZ SLUČAJA ZBRINJAVANJA MASOVNOG TROVANJA HRANOM - POGLED IZ OBJEDINJENOG HITNOG BOLNIČKOG PRIJEMA

CASE REPORT OF MAJOR FOOD POISONING MANAGEMENT – EMERGENCY DEPARTMENT POINT OF VIEW

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Uvod: Masovna nesreća je situacija u kojoj su raspoloživi resursi nedovoljni za neposrednu medicinsku pomoć. U ovom prikazu slučaja želi se prikazati postupanje prema internom protokolu za masovne nesreće i adekvatno zbrinjavanje pacijenata što je zahtijevalo angažman bolničkog osoblja koje primarno nisu zaposlenici objedinjenog hitnog bolničkog prijema(OHBP). Zbog suočenosti sa problemom preopterećenja brojem pacijenata do izražaja je došla organizacija izvanbolničke hitne medicinske službe(HMS) i OHBP-a uz pravovremeno informiranje, povezivanje i međusobnu pomoć. Posebnost masovnih nesreća je u tome što zahtijeva brz i efikasan odgovor te usklađenost djelovanja na svim razinama. Važnost posljedica masovnih nesreća prepoznali su i Ujedinjeni narodi donošenjem Sendai okvira za smanjenje rizika od katastrofa od 2015. – 2030.g.

Opis slučaja: Na svadbenoj proslavi u blizini Slavonskog Broda u rujnu 2015.g. došlo je do masovnog trovanja. Putem sustava HMS, a i uz vlastiti prijevoz, u vremenskom razdoblju od oko 35 minuta na OHBP pristigle su 54 osobe koje su pokazivale kliničke znakove masovnog trovanja hranom. Uz angažman brojnih djelatnika bolničke ustanove u kratkom vremenskom razdoblju učinjena je trijaža na OHBP-u uz adekvatno zbrinjavanje ovisno o kliničkoj slici pacijenata koja je uključivala širok spektar simptoma, od blažih do životno ugroženih. Prema prvim podacima dobivenih od timova HMS, postavljena je sumnja na trovanje gljivama, no kasnijom analizom uzoraka stolice potvrđeno je trovanje stafilokoknim toksinom.

Zaključak: Pokazatelj uspješnog bolničkog zbrinjavanja leži u činjenici da je za sva 54 pacijenta u kratkom vremenu osigurano optimalno liječenje, a za potrebite i hospitalizacija. Svaka država bi trebala imati svoj plan zbrinjavanja u slučaju masovnih nesreća, a uspoređujući hrvatski sustav koji ima donešene smjernice u slučaju masovnih nesreća, vidljivo je da je potrebno daljnje ulaganje u opremu i adekvatnu edukaciju osoblja u hitnim službama.

Ključne riječi: *masovno trovanje, masovna nesreća, OHBP, trijaža, stafilokokni toksin*

Key words: *major food poisoning, major incident, emergency department, triage, staphylococcal toxin*

MOBILNI PSIHIJATRIJSKI TIM U PRISTUPU OSOBI OBOLJELOJ OD SHIZOFRENIJE – PRIKAZ SLUČAJA

A MOBILE PSYCHIATRIC TEAM APPROACHING A PERSON WITH SCHIZOPHRENIA – A CASE REPORT

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Uvod: Implementacijom modela psihijatrije u zajednici učinjen je značajan iskorak u psihijatrijskoj skrbi za osobe oboljele od psihičkih poremećaja, a čijim će prikazom biti argumentirana uloga inovativnih pristupa u liječenju i oporavku osoba sa iskustvom psihičkih smetnji.
Opis bolesnika: Uz isticanje iskustava, prednosti, ali i ograničenja modela psihijatrije u zajednici, u izlaganju ćemo prezentirati četrdestgodišnju pacijenticu oboljelu od shizofrenije. Radi se o osobi koja je po dolasku na Odjel evaluirana u okviru akutne psihotične slike obilježene izostankom uvida, produkcijom sumanutih ideja paranoidnog tipa uz afirmaciju slušnih halucinacija. Psihofarmakološko liječenje uključuje parenteralnu, kao i supstituiranu peroralnu primjenu antipsihotika i anksiolitika. Vremenom dolazi do redukcije produktivne psihopatologije, kao i postizanje značajnijeg uvida i kritičnosti čime se ostvaruju uvjeti za hospitalnu demisiju.
Materijali i metode: Poboljšanjem stanja uz standardnu dijagnostičko-terapijsku obradu te psihoedukaciju i psihosuport realiziran je završetak hospitalnog liječenja te je bolesnica uključena u aktivnosti mobilnog tima čije su kontinuirane posjete dale doprinos u ukupnoj stabilizaciji njenog psihičkog stanja. Tijekom 2017. i 2018. godine Ministarstvo zdravstva Republike Hrvatske provodilo je pilot projekt "Pokretanje timova za zaštitu mentalnog zdravlja u zajednici", čime je na nacionalnoj razini započela uspostava inovativnog koncepta psihijatrije u zajednici. Mobilni psihijatrijski tim predstavljao je najvažniji segment projekta u okviru aktivnosti Odjela za psihijatriju Opće bolnice Karlovac. Članovi tima realizirali su više od dvije stotine kućnih posjeta, a vodeća dijagnoza psihotičnog procesa odnosila se na trećinu uključenih pacijenata. Pritom su provedene intervencije (psihosuport, psihoedukacija, korekcija i/ili aplikacija psihofarmakoterapije) značajno pridonijele remisiji, oporavku, poboljšanju kvalitete života te destigmatizaciji osoba sa psihičkim smetnjama.
Zaključak: Prikazom pristupa osobi oboljeloj od shizofrenije u okviru posjeta mobilnog psihijatrijskog tima ističemo nužnost i važnost reorganizacije psihijatrijske skrbi prema intenziviranju usluga u zajednici, s ciljem kvalitetnijih ishoda liječenja i bržeg oporavka pacijenata.

Ključne riječi: *psihijatrija, intervencije, shizofrenija, interdisciplinarnost, oporavak*

Key words: *psychiatry, interventions, schizophrenia, interdisciplinarity, recovery*

ASSESSMENT AND STROKE TREATMENT IN PREHOSPITAL EMERGENCY MEDICAL SERVICES

PROCJENA I ZBRINJAVANJE MOŽDANOG UDARA U VANBOLNIČKOJ HITNOJ MEDICINSKOJ SLUŽBI

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Introduction: The American Heart Association (AHA) and the American Stroke Association (ASA) have developed Guidelines for Assessment and Treatment of Stroke in prehospital Ccnditions in year 2013. Scores such as RACE, FAST-ED, C-STAT and VAN Stroke have been used since then. The ability to detect and evaluate a stroke is different for each scale, and the degree of sensitivity ranges from 55% to 71% depending on the scale applied. The details will be presented in the work.
Case description: Emergency medical services (EMS) team comes to the house of a 75-year-old patient. Since yesterday he has been feeling bad, in the night he has developed the weakness of the right side of the body and is speaking hard. The emergency medicine physician evaluates neurological status and raises suspicion of stroke. After initial assessment and during treatment physician informs the neurologist in the hospital and calls a stroke alert. Are there existing scales for assessing the size of occlusion of the affected region? Is it an ischemic stroke or haemorrage has happend? Did we provide all the necessary neurological information to prepare the team at the Stroke Treatment Unit?
Conclusion: The purpose of the scale is to create a stroke protocols, with the aim of creating a survival chain without a weak link, which ultimately leads to better treatment outcome for the patient.

Key words: *assessing the stroke, treatment of stroke, stroke, acute brain injury, brain infarction*

OSPICE

MEASLES

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Uvod: Ospice (lat.morbilli) su akutna, generalizirana, osipna, virusna bolest koja se prenosi kapljičnim putem. Uz osip praćena je vrućicom, kataralnim respiratornim simptomima i enantemom bukalne sluznice. Uvođenjem cijepljenja incidencija bolesti značajno se smanjila.

Opis bolesti: Uzročnik je virus ospica (rod *Morbillivirus*, porodica *Paramixoviridae*). Prirodni domaćin virusa je čovjek. Bolest se prenosi kapljičnim putem. Inkubacija bolesti je deset do dvanaest dana. Širenju virusa pogoduju hladni i suhi mjeseci. Dojenčad je u prvih šest mjeseci života zaštićena majčinim, transplacentarno prenešenim protutijelima. Za bolest su tipične primarna i sekundarna viremija, te sklonost bakterijskim superinfekcijama. Prolazna depresija stanične imunosti u tijeku ospica posljedica je direktne invazije i oštećenja T limfocita. Osim klasične kliničke slike (kataralni i egzantemski stadij), postoje i mitigirane (modificirane) ospice, te atipične i hemoragične ospice. Osobito su teške u imunokompromitiranih (gigantocelularna pneumonija, progresivni encefalitis) i trudnica. Najčešće su komplikacije u dišnom sustavu uzrokovane samim virusom ospica (laringitis, traheobronhitis, intersticijska upala pluća) i javljaju se u kataralnom stadiju bolesti. Sljedeće po učestalosti su sekundarne bakterijske komplikacije (akutna upala srednjeg uha, upala sinusa, bakterijska upala pluća). Ove komplikacije javljaju se u egzantemskom stadiju bolesti. Najteže komplikacije javljaju se u središnjem živčanom sustavu (različite forme meningoencefalitisa), potom kardijalne komplikacije (mioperikarditis), te okularne (keratitis). Neinfektivne bolesti koje se dovode u uzročno posljedičnu vezu s virusom ospica su multipla skleroza i sistemski eritemski lupus. Diferencijalno dijagnostički u obzir dolaze različite virusne, bakterijske te autoimune bolesti. Liječenje je simptomatsko, po potrebi treba liječiti bakterijske komplikacije. Prevencija bolesti provodi se cijepljenjem.

Zaključak: Unatoč obveznom cijepljenju ospice se i danas javljaju sporadično, a svakih nekoliko godina i epidemijski. Nužan je adekvatan epidemiološki nadzor bolesnika i njegovih kontakata. Bolest je najčešće blaže kliničke slike i kao takva u najvećem broju slučajeva ima dobru prognozu.

Ključne riječi: ospice, osip, cijepljenje

Keywords: measles, rash, vaccination

BIOMEDICINA I BIOLOGIJA
/
BIOMEDICINE AND BIOLOGY

RAČUNALNO ISTRAŽIVANJE VEZANJA STRUKTURNIH DERIVATA AZITROMICINA U PEPTIDIL-TRANSFERAZNI CENTAR VELIKE PODJEDINICE RIBOSOMA BAKTERIJE *ESCHERICHIA COLI*

COMPUTATIONAL STUDY OF INTERACTIONS BETWEEN AZITHROMYCIN DERIVATIVES AND PEPTIDYL-TRANSFERASE CENTER OF *ESCHERICHIA COLI* RIBOSOME

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Uvod: Rezistencijski mehanizmi patogenih bakterija otežavaju primjenu makrolidnih antibiotika u kliničkoj praksi. Jedan od najčešćih oblika rezistencije koji nalazimo kod bakterijskih patogena je dimetilacija A2058 ili A2058G supstitucija unutar 23S rRNA.
Cilj: U sklopu ovog rada istražene su interakcije između 10 različitih azitromicinskih derivata i veznog mjesta PTAR-a (engl. peptidyl transferase-associated region) velike podjedinice ribosoma bakterije *Escherichia coli* s ciljem dizajniranja novih, potencijalno efikasnih antibiotika.
Materijali i metode: Vezanje azitromicinskih derivata u veznog mjesta PTAR-a istraženo je s pomoću računalnih metoda molekulskog uklapanja i Monte Carlo konformacijske pretrage. Prije računalnog istraživanja interakcija azitromicinskih derivata i veznog mjesta PTAR-a, konformacijski prostor svakog od 10 liganada pretražen je Monte Carlo algoritmom uz 4 različita modela otapala. Najpovoljniji konformeri pronađeni u svakom od modela otapala, kao i konformeri koji najbolje reprezentiraju grupe dobivene klaster analizom, korišteni su kao početne strukture prilikom istraživanja interakcija vezanja liganada u vezno mjesto PTAR-a.
Rezultati: Temeljem provedenog računalnog istraživanja vezanja liganada u PTAR velike podjedinice prokariotskog ribosoma utvrđeno je da se ligand D efikasno veže u PTAR i u prisutnosti dimetiliranog A2058. Štoviše, ligand D u PTAR-u s dimetiliranim A2058 ima nižu energiju vezanja nego ligand D vezan u PTAR s A2058 koji nije metiliran. Efikasno vezanje liganda D uzrokovano je prvenstveno hidrofobnim interakcijama koje makrolaktonski prsten stvara s aminokiselinama Lys 90, Lys 91 i Arg 92, te s nukleotidom A751.
Zaključak: Ligand D se putem hidrofobnih interakcija veže u izlatni kanal PTAR-a uspješno ga blokirajući te je potencijalno efikasan antibiotic primjenjiv I za liječenje bakterijskih sojeva koji su protiv ostalih makrolida razvili rezistenciju putem dimetilacije A2058.

***Ključne riječi**: rezistentni bakterijski sojevi, makrolidi, molekulsko uklapanje, Monte Carlo konformacijska analiza*

***Keywords**: antibiotic resistant bacteria, macrolides, molecular docking, Monte Carlo conformational search*

ChIP-SEQ ANALIZA CILJNIH GENA PROTEINA GLI

ChIP-SEQ ANALYSIS OF TARGET GENES REGULATED BY GLI PROTEINS

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Introduction: Hedgehog-GLI (HH-GLI) signaling pathway is one of the key regulators of normal embryonal development. Its aberrant activation has been linked to several types of cancer, including melanoma. Previous studies in our laboratory demonstrated that BRAF and NRAS melanomas have different response to HH-GLI signaling pathway inhibition.
Aim: The aim of this study was to screen target genes regulated by GLI proteins in melanoma cell lines with different BRAF/NRAS mutational background.
Materials and methods: For that purpose, chromatin immunoprecipitation sequencing (ChIP-seq) was performed. Firstly, 14 melanoma cell lines were collected and their mutation status was confirmed by Sanger sequencing. The cell lines were divided into categories based on their mutational background: BRAF-mutated, NRAS-mutated, and wild-type for BRAF and NRAS. Three cell lines were selected for ChIP analysis based on protein expression of HH-GLI signaling pathway components: CHL-1 for the wild-type cell group, A375 for the cell group with BRAF gene mutation and MEL224 for the cell group with NRAS gene mutation. Purified chromatin samples were used for library preparation and proceeded for next-generation sequencing (NGS). Target genes were analyzed *in silico* and validated by quantitative polymerase chain reaction (qPCR).
Results: ChIP-seq analysis identified 603 GLI target genes of which 183 (30%) have GLI1, 399 (66%) GLI2 and 131 (21%) GLI3 binding sites. Only 23 target genes (3.8%) were mutual for all GLI transcription factors. Besides protein coding genes, 20 microRNAs (miRNAs) and 29 long non-codingRNAs (lncRNAs) molecules with GLI binding sites were identified. qPCR validation included selected 23 protein coding genes, 9 miRNAs and 3 lncRNAs involved in regulation of Ras-Raf-MEK-ERK signal pathway.
Conclusion: Identifying GLI protein target genes in melanoma cell lines with different mutational background represents a distinct potential for the development of combined therapy with HH-GLI signaling pathway and BRAF/NRAS inhibitors.

Keywords: *melanoma, GLI proteins, BRAF, NRAS, ChIP-seq*

Ključne riječi: *melanom, proteini GLI, BRAF, NRAS, ChIP-seq*

UTJECAJ KOMORBIDITETA I PRIMIJENJENIH LIJEKOVA NA TRAJANJE NEUROMUSKULARNE BLOKADE

THE EFFECTS OF REVERSAL DRUGS AND COMORBIDITIES ON THE NEUROMUSCULAR BLOCKADE RECOVERY

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Uvod: Upotreba neuromuskularnih relaksatora je dio svakodnevne anesteziološke prakse i omogućuju intubaciju i mehaničku ventilaciju te ostvarivanje optimalnih kirurških uvjeta. Postoji širok izbor nedepolarizirajućih relaksatora, a najupotrebljavaniji je rokuronij. Intenzitet neuromuskularne blokade se procjenjuje mjerenjem mehaničkog odgovora na električnu stimulaciju izazvanu perifernim nervnim stimulatorom. Najkorisnija metoda za procjenu dubine relaksacije je TOF monitoring. Nakon primjene relaksatora nužno je postići i adekvatan oporavak neuromuskularne funkcije. Reverzija bloka se može izvesti antikolinesterazanim lijekovima kao što je neostigmin, ili novim lijekom iz skupine ciklodekstrina, sugamadeksom.
Cilj: Cilj studije je povezati demografske osobine bolesnika koji se podvrgavaju kirurškim zahvatima u općoj anesteziji uz uporabu rokuronijuma sa brzinom oporavka nakon primjene neostigmina ili sugamadeksa.
Ispitanici i metode: Uzorak je činilo 76 kirurških bolesnika kod kojih je operacijski zahvat rađen u općoj anesteziji uporabom propofola, fentanila i rokuronija. Intenzitet bloka se određivao metodom akceleromiometrije mjerenjem TOF omjera.
Rezultati: Nije utvrđena statistički značajna povezanost demografskih osobina (spol, dob, BMI) i komorbiditeta sa potrošnjom lijekova, nastupom blokade i oporavkom mišićne funkcije do pojave TOF2 trzaja. Reverzija bloka je znatno brža ukoliko se koristi sugamadeks umjesto neostigmina (2,9 ± 1,2 minute naspram 7,3 ± 3,7 minuta; p<0,0001). Vrijeme do ekstubacije je u grupi koja je primila sugamadeks bilo kraće nego u grupi koja je primila neostigmin (4,1 ± 1,7 minuta naspram 5,8 ± 2,7 minuta; p=0,0015), a TOF omjer prilikom ekstubacije je bio viši (88,3 ± 25,3 naspram 64,4 ± 31,5; p=0,00048).
Zaključak: Oporavak iz neuromuskularnog bloka je znatno brži sa sugamadeksom nego neostigminom. Sposobnost sugamadeksa da inducira reverziju intenzivnog bloka daje mogućnost upotrebe nakon primjene velikih doza rokuronija u situacijama kada je potrebna hitna intubacija. Sugamadeks predstavlja i rješenje za situacije kada je neuromuskularni blok uspostavljen a intubacija nije moguća.

***Ključne riječi**: Neuromuskularna bolkada, TOF monitoring, rokuronijum, neostigmin, sugamadeks*

***Key words**: Neuromuscular blockade, TOF monitoring, rocuronium, neostigmine, sugamadex*

MAHOVINE KAO BIOINDIKATORI TALOŽENJA TEŠKIH METALA

MOSSES AS A BIOINDICATOR OF A HEAVY METAL POLLUTION

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Introduction: Biomonitoring by using plants has been shown in several countries as a cost-effective tool for assessing trace element atmospheric deposition. In order to exclude the possibility of adsorption of heavy metals from the soil mosses were used because they have no roots, no cuticle, and acquire all their nutrients from direct exposure to the atmosphere.

Aim: To evaluate the atmospheric deposition of the heavy metals (Cd, Cr, Hg, Pb and Zn) by using Hylocomium splendens and Brachythecium rutabulum species of pleurocarpous mosses, which natively grows in the Risnjak National Park (Croatia).

Materials and methods: The research was conducted during 2016 when samples of Brachythecium rutabulum and Hylocomium splendens were collected during the rainy and dry (when the soil was also sampled) season from five sites in the Risnjak National Park. The trace metals Cd, Cr, Pb, and Zn were analysed by inductively coupled plasma optical emission spectroscopy (HRN ISO 22036:2011), while Hg was analysed by cold-vapor atomic absorption spectrophotometry (HRN ISO 16772:2009).

Results: Measured concentrations indicate there is no strong correlation between metal concentrations in soil and mosses. In order to deduce anthropogenic or natural contributions of metals in mosses, the enrichment factors were calculated according to Salomons and Förstner (1984). Enrichment factors were less than 2 for Cd, between 3 and 5 for Cr, greater then 10 for Hg, as well as for the Pb. According to enrichment factors moss samples were highly enriched with Hg and Pb, slightly enriched with Cr, and no enriched with Cd.

Conclusion: All the above points to the fact that moss can serve as good bioindicators of atmospheric pollution.

Key words: *mosses, heavy metals, bioindicators, Risnjak National Park*

IZRAŽAJ TFF1 I TFF3 GENA I PROTEINA JE PROMJENJEN KOD BOLESNIKA OBOLJELIH OD KRONIČNOG RINOSINUITISA S NOSNOM POLIPOZOM TE POVEZAN SA BAKTERIJSKOM KOLONIZACIJOM NOSNE SLUZNICE

TFF1 AND TFF3 GENE AND PROTEINS ARE DIFFERENTIALLY EXPRESSED IN PATIENTS SUFFERING FROM CHRONIC RHINOSINUSITIS WITH NASAL POLYPOSIS AND LINKED TO BACTERIAL COLONIZATION OF NASAL MUCOSA

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Introduction: Trefoil family factor (TFF) proteins contribute to antimicrobial defense and the maintenance of sinonasal epithelial barrier integrity. Dysregulation of TFF expression may be involved in the development of chronic inflammation and tissue remodeling characteristically found in chronic rhinosinusitis with nasal polyposis (CRSwNP).
Aim: To assess the expression levels of TFF1 and TFF3 in nasal mucosa of patients with CRSwNP prior to surgery and medicamentous steroid therapy, and six months after the treatment. Additionally, the effects of allergy and bacterial colonization of the sinonasal mucosa were examined.
Materials and methods: 29 CRSwNP patients subjected to functional endoscopic sinus surgery (FESS) and 25 control patient undergoing nasal septoplasty were recruited to participate in this study. CRSwNP patients were additionally stratified to subgroups based on the presence of allergy and/or bacterial colonization of the ethmoid sinus. The gene expression was assessed by quantitative real-time PCR using SYBR green detection chemistry, and the data were normalized to HPRT and YWHAZ. Tissue distribution and expression of TFF proteins were assessed by immunohistochemistry.
Results: TFF1 and TFF3 peptides are continuously expressed in nasal polyps tissue in the same fashion as in the respiratory and the gastrointestinal tract. TFF1 mRNA levels were significantly reduced in all specimens by approximately three- to five-fold, while TFF3 was increased in middle nasal turbinate, as compared with controls. Six months after treatment their levels were reversed to control values. CRSwNP patients with S. epidermidis isolated from sinus swabs had higher levels of TFF3 mRNA compared with patients whose swabs were sterile. Target gene regulation was not affected by the presence of type 2 inflammation in patients with confirmed allergy.
Conclusion: TFF expression could be used as an indicator for long-term follow-up of treatment outcomes in patient with CRSwNP.

Key words: *trefoil family factor, chronic rhinosinusitis with nasal polyposis, inflammation*

Ključne riječi: *trefoil porodica proteina, kronični rinosinusitis sa nosnom polipozom, upala*

KARDIOVASKULARNI I RESPIRATORNI SUSTAV

/

CARDIOVASCULAR AND RESPITATORY SYSTEM

LEAD V4R IN INFERIOR ST ELEVATION MYOCARDIAL INFARCTION
A MISSING PIECE OF PUZZLE

ODVOD V4R KOD ST ELEVACIJSKOG INFARKTA MIOKARDA
KARIKA KOJA NEDOSTAJE

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Introduction: The 12-lead ECG represents the gold standard for diagnosis of acute myocardial infarction (STEMI). A lot of algorithms based on the deviation of ST segment in standard leads can predict infarct related artery (IRA) with great certainty. They are put in question by introducing an urgent coronary angiography in STEMI, because of reliable identification of IRA. Additional criteria, right precordial leads (V4R), can increase the sensitivity of the existing algorithms.
Aim: To determine the relationship between ST segment deviation in V4R lead, in patients with acute STEMI of inferior localization, with the occlusion site of coronary artery.
Methods: We included 120 out of 159 patients with inferior STEMI, hospitalized in our coronary care unit in a period of two years (2008/2009), that underwent primary PCI. The 12 lead ECG and right precordial leads were recorded in all patients and IRA were divided by segments.
Results: 96 patients had right coronary artery (RCA) as the IRA. Proxymal segment in 30 patients (ST segment elevation of more than 0,5 mm in all of them). Mid RCA in 45 patients (elevation in 5, isoelectric in 37 and denivelation in 4). Distal RCA in 21 patients (18 isoelectric and 3 with ST depression). Left circumflex artery (LCx) was IRA in 24 cases. Proxymal occlusion in 12 patients (9 isoelectric and 3 denivelation); distal segment in 12 (6 isoelectric and 6 denivelation).
Conclusion: Elevation of ST segment in V4R for more than 0.5 mm was found only with RCA as IRA. Furthermore, we found a great positive predictive value for the V4R lead in identification of occluded RV branch when the elevation was higher than 1.5 mm.
V4R is a good predictor for proximal RCA occlusion. Its specificity decreases significantly when it comes to discrimination of middle and especially distal RCA and LCX artery.

Key words: *V4R lead, STEMI, urgent coronary angiography*

Ključne riječi: *odvod V4R, STEMI, žurna koronarografija*

REZULTATI KATETERSKE ABLACIJE U LABORATORIJU MALOG VOLUMENA

CATHETER ABLATION RESULTS IN LOW VOLUME LABORATORY

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Introduction: An electrophysiological study (EP study) and catheter ablation are an invasive procedure for diagnostic and treatment of cardiac arrhythmias. According to the published results, the efficacy of the procedure for supraventricular arrhythmia rang form 70% to 99% depend of type of arrhythmia and the complications rate range from 0.7% to 9.4%.
Aim: The aim of the study was to determine the efficacy and safety of the electrophysiological procedure in a low volume laboratory.
Materials and methods: In the study we used hospital's database for patients who underwent EP study and / or ablation in the period from 13th of February 2019 to 31st of July 2020. Also, a register of patients who underwent an electrophysiological procedure was used. We conducted a retrospective analysis of demographic and clinical data as well as the type of arrhythmias, the indications, the success of the procedure and complications.
Results: A total of 68 patients underwent invasive electrophysiological procedure, males 35 (51.5%). 34 patients (50%, median age 64) with atrial fibrillation were treated with cryoballoon (CRYO PVI). EP study with or without radiofrequency ablation (RFA) was performed also in 34 patients (50%, median age 59). The mean duration of CRYO PVI was 84.12 minutes, while the duration of EP study with RFA was 89.07 minutes . Recurrence of atrial fibrillation (AF) within 90 days was recorded in 3 patients (8.8%) and after 90 days in 2 patients (5.8%) after CRYO PVI. One groin hematoma was reported (1.4%) that did not require any specific treatment.
Conclusion: According to our data, catheter ablation is effective and safe method of treating patients with various arrhythmias in low volume laboratory. The results observed in our study are comparable with previously observed and published results.

Key words: *Catheter ablation, CRYO, complications, recurrence*

Ključne riječi: *Kateterska ablacija, CRYO, komplikacije, recidiv*

UTJECAJ KONZUMACIJE KOKOŠJIH JAJA OBOGAĆENIH OMEGA-3 MASNIM KISELINAMA NA FUNKCIJU KARDIO-IMUNO-VASKULARNOG SUSTAVA KOD BOLESNIKA S POZNATOM ATEROSKLEROTSKOM BOLESTI KORONARNIH ARTERIJA – PRELIMINARNI REZULTATI

EFFECT OF CONSUMPTION OF OMEGA-3 FATTY ACID-ENRICHED CHICKEN EGGS ON CARDIO-IMMUNE-VASCULAR FUNCTION IN PATIENTS WITH KNOWN ATHEROSCLEROTIC CORONARY ARTHERY DISEASE – PREELIMINARY RESULTS

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Uvod: Poznat je pozitivan učinak omega-3 polinezasićenih masnih kiselina (PUFA) kod kardiovaskularnih bolesnika, međutim još uvijek nije poznato može li konzumacija funkcionalne hrane obogaćene omega-3 PUFA imati isti učinak.
Cilj: Cilj ove studije (koja je još u tijeku) je odrediti učinak jaja obogaćenih omega-3 PUFA na mikrovaskularnu reaktivnost te odrediti utjecaj konzumacije omega-3 obogaćenih jaja na potencijalne promjene biokemijskih parametara iz krvi (lipidogram, pokazatelji upale kao što su C reaktivni protein i von Willebrandov faktor).
Ispitanici i metode: Ispitanici su kardiološki bolesnici sa stabilnom koronarnom bolesti (N=8) koji su konzumirali 3 jaja obogaćena omega-3 PUFA dnevno kroz 3 tjedna, a sva mjerenja su rađena prije i nakon konzumacije jaja. Mjerenja su uključivala postokluzivnu reaktivnu hiperemiju (PORH) u mikrocirkulaciji kože koja je procijenjena laser doper mjeračem protoka (LDF), laser dopler mjerenje mikrovaskularnog protoka kože kao odgovor na iontoforezu acetilkolina (Ach) i natrij-nitroprusida (SNP). Prikupljeni su uzorci krvi za lipidni profil, razinu glukoze natašte, visokosenzitivni CRP, von Willebrandov faktor i druge biokemijske parametre. Analizirani su i hemodinamski parametri (sistolički i dijastolički krvni tlak, puls). Statistička analiza izvršena je Sigmaplotom, upotrebljen je upareni t-test za usporedbu varijabli prije i nakon konzumacije jaja.
Rezultati: Preliminarni rezultati pokazali su statistički značajno smanjenje vrijednosti von Willebrandova faktora nakon konzumacije jaja obogaćenih omega-3 PUFA sa 1.5±0.7 na 1.2±0.5. Ostali ispitivani parametri za sada nisu pokazali statistički značajne promjene,međutim radi se o malom broju ispitanika.
Zaključak: Ova studija još uvijek je u tijeku, predstavljeni rezultati su preliminarni, a analiziran je mali broj ispitanika (N=8). Za sada se pokazao povoljan učinak omega-3 PUFA na von Willebrandov faktor čije visoke razine mogu biti odraz oštećenja endotela i endotelne disfuncije.

Ključne riječi: *koronarna bolest, funkcionalna hrana, omega-3 masne kiseline, von Willebrandov faktor*

Key words:*coronary arthery disease, functional food, omega-3 fatty acids, von Willebrand factor*

POVEZANOST RESPIRACIJSKE FUNKCIJE KOD MEHANIČKI VENTILIRANIH BOLESNIKA U JEDINICI INTENZIVNOG LIJEČENJA I RAZINE SERUMSKOG KREATININA

A CORRELATION OF RESPIRATORY FUNCTION IN THE MECHANICALLY VENTILATED PATIENTS IN THE INTENSIVE CARE UNIT AND SERUM CREATININE LEVELS

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Introduction: Respiratory failure is associated with different groups of dissorders, characterized by ventilation-perfusion mismatch or lung diffusion disorders. Patients with decompensated respiratory failure require mechanical ventilation. Low creatinine level is associated with muscle weakness, which increases the risk of prolonged stay on mechanical ventilation.
Aim: Low creatinine levels may be a sign of muscle atrophy or weakness, and therefore predictive for respiratory insufficiency in the ICU patients. We compared the outcomes of patients with low creatinine levels (LCR) with subsequent ICU patients admitted into ICU in the tertiary hospital.
Materials and Methods: We have found a total of 46 LCR patients and compared their outcome data with a group of patients with normal or high creatinine levels (control group, N=61). Low creatinine was defined as values of ≤40 μmol/L. Demographic data, type of admission (medical vs. surgical), hemoglobin values, CRP, and ventilator days were compared. A statistical analysis was performed using chi square and T-test.
Results: Mean age of LCR patients was 53.9 (20.1) and 60.8 (17.6) years in control group. There were more female patients in LCR group as compared to the control (71% vs. 39%, P P<0.001). 26 LCR patients and 52 patients in control group underwent surgical treatment (P=0,002). LCR patients reported lower subsequent hemoglobin measurements (99 (14.6) vs. 109.1 (19.8) g/L, P=0.006). The patients in the LCR group had 8.6 (11) ventilator days vs. 3.6 (7.6) days in the control group (P=0.011). Despite more ventilator days, patients in the LCR group had lower maximal CRP values (112.8 (77) vs. 171.2 (125.2); P=0.02).
Conclusion: Low creatinine levels may predict respiratory insufficiency in the ICU patients. Further studies should confirm whether maneuvers that may increase muscle mass and subsequently creatinine levels, may improve the outcome of the ICU patients.

Key words: *low creatinine values, respiratory failure, ICU, mechanical ventilation.*

Ključne riječi: *niske razine kreatinina; respiracijska insuficijencija; JIL; mehanička ventilacija.*

ISTRAŽIVANJE ANIMALNOG MODELA KARDIOPROTEKCIJE INHALACIJSKIM ANESTETICIMA: STRUČNI ČLANAK

INVESTIGATION OF AN ANIMAL MODEL OF CARDIOPROTECTION INDUCED BY INHALATIONAL ANESTHETICS: EXPERT ARTICLE

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Introduction: The phenomenon of ischemic preconditioning is nowadays recognized as a method with a potent protective effect for the development of ischemic heart disease. Previous researches, in animal and human (in vitro) models, has shown that a short period of intentionally induced ischemia has a protective effect by reducing the zone of myocardial infarction, the occurrence of malignant arrhythmias, the development of reperfusion injury and for preventing endothelial dysfunction. The use of inhalatioanl anesthetics achieves a cardioprotective perioperative effect with simultaneous renal and cerebral protection.
Aim: Effect and comparison of inhalational anesthetics in achieving cardioprotection in an animal model.
Materials and methods: The study included data obtained by searching Medline's database (used search terms were: ischemia, preconditioning, cardioprotection, intoxication, free radicals, isoflurane, sevoflurane, desflurane, halothane, myocardium, animal model). Including research criteria were studies of the application and the effect of inhalational anesthetics on an animal model (isoflurane, desflurane, sevoflurane, halothane), regardless of sex and species of the experimental animal. The exclusion criteria was the targeted organ of ischemic preconditioning (all organs and organ systems except the heart muscle).
Results: Previous studies have shown that inhalatioanl anesthetics statistically significant reduce the area of necrosis (most studies were based on the use of isoflurane), more pronounced in combination with ischemic preconditioning.
Conclusion: Future research efforts should be focused on assessing the choice of the optimal inhalation anesthetic, in the optimal dose, according to a previously developed and adopted protocol. Studies in a human model are based on limited in vitro studies, but the use of inhalational anesthetics for therapeutic purposes in patients at high risk of developing ischemic heart disease will require additional and extensive in vivo studies.

***Key words**: animal model, inhalational anesthetics, ischemia, preconditioning*

***Ključne riječi:** animalni model, inhalacijski anestetici, ishemija, prekondicioniranje*

ONKOLOGIJA I BIOLOGIJA TUMORA
/
ONCOLOGY AND TUMOR BIOLOGY

PROTUTUMORSKI UČINCI NOVIH DERIVATA KUMARINA NA STANICE TUMORA DEBELOG CRIJEVA *IN VITRO*

ANTITUMOR EFFECTS OF NEW COUMARIN DERIVATIVES ON COLON TUMOR CELLS *IN VITRO*

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Introduction: Colorectal cancer is the leading cause of death in the world, and its frequency has been increasing. As a result of their wide range of biological activities, coumarins isolated from natural sources have been an intriguing subject of investigation for many researchers. Studies have shown that coumarins have a strong inhibitory effect on various tumor cells. Therefore, the coumarin scaffold as a pharmacophore is extremely important for the development of anticancer drugs.
Research objectives: Test the effect of coumarin derivatives on the growth of normal epithelial cells and colorectal cancer cells *in vitro*. Determine the cell cycle change and the apoptotic path of treated cells.
Materials and methods: The inhibitory effect of the derivatives has been determined by the MTT (3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide) assay, performed on the three colorectal cancer cell lines (SW-60, HT-29, and CaCo-2) and the normal cell line (MDCK1). The cytotoxicity effect has been determined by measuring the lactate dehydrogenase enzyme released in the cell medium. The alterations of the cell cycle have been monitored on the CaCo-2 cell line by the flow cytometry. The apoptosis pathway has been determined by measuring the membrane potential of the damaged mitochondria on the CaCo-2 cells.
Results: The greatest cytotoxicity has been observed by the NS-48 and A-153 derivatives at the 10^{-4} M on all cell lines. The exposure of the CaCo-2 cells to NS-48 and A-153 derivatives has caused a mild increase of the cell number in the G1 phase and the reduction of the cell number in the G2/M phase. The NS-48 and A-153 derivatives have caused a decrease of the mitochondrial potential and the depolarization of the membrane of the CaCo-2 cells.
Conclusion: The coumarin derivatives reduce the cell growth of the tumor cells in a concentration depending manner and depending on the cell type. The alterations of the cell cycle and the reduction of mitochondrial potential in the cells treated by the coumarin derivatives have been observed**.**

Keywords: *colonic neoplasms, coumarins, mitochondrial membrane potential, cell cycle, cell culture techniques*

Ključne riječi: *karcinom debelog crijeva, kumarini, mitohondrijski membranski potencijal, stanični ciklus, tehnike kulture stanica*

ANALYSIS OF THE PRESENCE OF TFF3 PROTEIN IN LUMINAL B TYPE BREAST CANCER BEFORE AND AFTER CHEMOTHERAPY

ANALIZA PRISUTNOSTI TFF3 PROTEINA U LUMINAL B TIPU KARCINOMA DOJKE PRIJE I NAKON KEMOTERAPIJE

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Introduction: Breast cancer is the leading cancer among women in Croatia. TFF3 is a normal breast epithelial protein and is associated with differentiated phenotype in early breast cancer but predisposes to invasion and metastasis in advanced disease.
Aim: The aim of this research was to determine whether there is a difference in the expression of TFF3 protein in breast cancer patients before and after chemotherapy, to investigate the correlation of TFF3 protein expression with the expression of Ki-67 proliferation factor and to investigate the correlation of TFF3 protein expression with microvessel density value (MVD) in tumour tissue.
Materials and methods: The tumour tissue material of 22 patients with luminal B breast cancer diagnosed by immunohistochemical technique before and after neoadjuvant chemotherapy and material of 5 patients with healthy breast tissue were used in the study. The material was immunohistochemically stained for CD34 and TFF3. The expression of the proliferation index Ki-67 was determined by examining the archived histopathology slides.
Results: Expression of TFF3 protein and Ki-67 was significantly lower after chemotherapy. MVD value did not change significantly after chemotherapy. The correlation of TFF3 protein expression with the expression of Ki-67 proliferation factor and with MVD value did not appear statistically significant.
Conclusion: TFF3 protein expression in luminal B breast cancer is significantly lower after neoadjuvant chemotherapy but is not directly related to Ki-67 proliferation index values and MVD.

Keywords: *breast; breast cancer; immunohistochemistry; chemotherapy; TFF3.*

Ključne riječi: *dojka; karcinom dojke; imunohistokemija; kemoterapija; TFF3.*

UTJECAJ RENIN-ANGIOTENSIN-ALDOSTERON SUSTAVA NA METABOLIZAM GLUKOZE KOD INCIDENTALOMA NADBUBREŽNE ŽLIJEZDE

INFLUENCE OF RENIN-ANGIOTENSIN- ALDOSTERONE SYSTEM ON THE GLUCOSE METABOLISM IN PATIENTS WITH ADRENAL INCIDENTALOMA

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Uvod: Provedeno je presječno istraživanje iz povijesti bolesti kojim su se gledale korelacije raznih parametara bolesnika s incidentalomom nadbubrežne žlijezde
Cilj istraživanja: U bolesnika s incidentalomom utvrditi utjecaj renin-angiotensin-aldosteron sustava na metabolizam glukoze
Materijali i metode: U istraživanje su uključeni svi pacijenti koji su u razdoblju od 2016. do 2018. godine liječeni na Klinici za unutarnje bolesti KBC-a Osijek pod dijagnozom incidentaloma nadbubrežne žlijezde. Bolesnici su podijeljeni u dvije skupine: one s patološkim omjerom i one s urednim ARR. Uključni kriteriji bili su: bolesnici s incidentalomom nadbubrežne žlijezde, verificirani CT-om, nesekretorne prirode. Isključni kriteriji bili su sekretorna priroda incidentaloma, te prethodni dijabetes u anamnezi.
Rezultati: Istraživanje je provedeno na 94 pacijenta, od kojih je 39 (42 %) muškaraca i 55 (58 %) žena. Patološki ARR imalo je 54 (57,4%) pacijenata, dok je 40 (42,6%) imalo uredan. Nije bilo razlika u biokemijskim pokazateljima i razini GUP-a i HbA1c ovisno o tome ima li bolesnik patološki ili uredan ARR, niti je utvrđena korelacija između razina GUP-a/HbA1c i razina aldosterona. Jedini biokemijski pokazatelj koji je pokazao značajnu korelaciju bio je kalij u obrnuto proporcionalnoj korelaciji s razinama aldosterona i RAP-a. S obzirom da razine aldosterona i RAP-a obrnuto proporcionalno koreliraju s razinama kalija, aldosteron endogeno izlučen u bolesnika s incidentalomom uzrokuje neki spektar hipokalijemije.
Zaključak: Ovaj rad nije dokazao povezanost između ARR i razina GUP-a koja bi dokazala da RAAS ima utjecaj na metabolizam glukoze, ali je ukazao na patološki lipidogram, pretilost i hipertenziju velike većine pacijenata s incidentalomom. Ovom studijom zaključeno je i da više od pola pacijenata ima patološki ARR koja korelira s razinama kalija te se kod tih pacijenata bilježe niže vrijednosti kalija.

Ključne riječi: *incidentalom; nadbubrežna žlijezda; metabolizam glukoze; renin-angiotensin-aldosteron sustav; omjer aldosterona i reninske aktivnosti; hipertenzija; hipokalijemija*

Key words*: incidentaloma; adrenal gland; glucose metabolism; renin-angiotensin-aldosterone system; ratio of aldosterone and renin activity; hypertension; hypokalemia*

CELL-TYPE SPECIFIC METABOLIC RESPONSE OF CANCER CELLS TO CURCUMIN

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Introduction: Malignant cells have huge ability to adjust signaling and metabolic pathways to maintain their specific cancer hallmarks. Uncontrolled proliferation, one of main characteristics of malignant cells, depends on cellular metabolism ability to adapt to increased energetic and biosynthetic requirements. The aerobic glycolysis or Warburg effect is considered as a crucial adaptation of metabolism in carcinomas cells. It is characterized by an increased uptake of glucose and hyperproduction of lactate. Serine biosynthesis is another important pathway for carcinomas cells. Synthesized serine is used for protein synthesis, the synthesis of other amino acids, nucleotides and lipids. Curcumin is natural compound obtained from the rhizome of the plant *Curcuma longa.* Its direct binding to cysteine residues of various proteins, including metabolic enzymes such as phosphoglycerate dehydrogenase (PHGDH), serine hydroxymethyltransferase 2 (SHMT2) and signal transducer and activator of transcription 3 (STAT3), may be very important for alleviating the Warburg effect.
Aim: The aim of the study was to see on which metabolic enzymes curcumin will have effect and in which amount. And finally how that will affect viability and proliferation in four different cancer cell lines.
Materials and methods: Cellular parameters like proliferation, viability, glucose consumption and lactate production were measured. The transcripts of pyruvate kinase 1 and 2 (PKM1, PKM2), PHGDH and SHMT2 were quantified with RT-qPCR. And proteins PKM1, PKM2 and STAT3 were quantified and localized by Western blot.
Results: The cell lines originating from head and neck squamous cell carcinomas (FaDu, Detroit 562 and Cal 27) showed high sensitivity to curcumin, especially Cal 27. Cell line HT-29 obtained from colon adenocarcinoma showed low sensitivity to curcumin.
Conclusion: We have shown that the basic cellular background significantly differed among different cancer cell lines. These differences are responsible for cellular response to any kind of intervention and so on treatment with curcumin.

***Keywords**:* PKM1, PKM2, SHMT2, PHGDH, STAT3, serine, curcumin

***Ključne riječi**:* PKM1, PKM2, SHMT2, PHGDH, STAT3, serin, kurkumin

ODREĐIVANJE KLJUČNE(IH) miRNA U SVRHU REGULIRANJA LIJEKOM POTAKNUTE EPITELNO-MEZENHIMALNE TRANZICIJE

SELECTION OF POSSIBLE miRNA CANDIDATES INVOLVED IN DRUG-INDUCED EPITHELIAL-MESENCHYMAL TRANSITION IN OVARIAN CANCER

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Uvod: Kasna pojava simptoma i nedostatak učinkovitih dijagnostičkih metoda učinili su rak jajnika najsmrtonosnijim od svih ginekoloških karcinoma. Poodmakli stadij bolesti i razvoj otpornosti na terapiju glavni su razlog neuspješnosti terapije, koja najčešće uključuje lijekove s platinom i taksane. Otpornost tumora na terapiju sve se češće povezuje s epitelno-mezenhimalnom tranzicijom (EMT), procesom uključenim u metastaziranje tumora. MikroRNA (miRNA), male ne-kodirajuće RNA koje imaju ulogu u post-transkripcijskoj regulaciji, također reguliraju i niz gena uključenih u proces EMT.
Cilj: Odrediti potencijalne miRNA od važnosti uključene u procese EMT i otpornosti na terapiju.
Materijali i metode: Profiliranje: Za analizu je korišten miRCURY LNA™ miRNome PCR Panel Human Panel I and II (Qiagen) koji obuhvaća 752 miRNA. *RNU6B* je korišten kao kontrola za normalizaciju. qPCR: Ukupna RNA je izolirana te je ekspresija odabranih miRNA provjerena qPCR-om. *RNU6B* je korišten kao kontrola za normalizaciju.
Rezultati: Profiliranje miRNA rezultiralo je identifikacijom 379 miRNA različito eksprimiranih u MES-OV CBP stanicama u odnosu na MES-OV liniju stanica. Analizom dobivenih podataka te proučavanjem literature, kao potencijalno najznačajnijih izdvojeno je nekoliko miRNA kandidata s povećanom odnosno smanjenom ekspresijom. Njihove predviđene mete provjerene su korištenjem nekoliko dostupnih baza, kao što su miRecords i miRWalk, te je također provjerena moguća poveznica s rezultatima predhodno napravljenog profiliranja mRNA i spektrometrije masa.
Zaključak: Promijenjena ekspresija nekoliko miRNA potvrđena je pomoću qPCR-a te će njihova moguća uloga u lijekom potaknutoj EMT biti ispitana transfekcijom roditeljskih MES-OV stanica mimic-RNA sekvencama.

Ključne riječi: *rak jajnika, EMT, otpornost na terapiju, miRNA*

Key words: *ovarian cancer, EMT, drug resistance, miRNA*

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FIZIOLOŠKI I BIOKEMIJSKI UČINAK SREBRA NA VODENU LEĆU *LEMNA GIBBA* L .: PROCJENA KOMERCIJALNO DOSTUPNOG PROIZVODA KOJI SADRŽI KOLOIDNO SREBRO

PHYSIOLOGICAL AND BIOCHEMICAL EFFECT OF SILVER ON THE AQUATIC PLANT *LEMNA GIBBA* L.: EVALUATION OF COMMERCIALLY AVAILABLE PRODUCT CONTAINING COLLOIDAL SILVER

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Uvod: Vodene leće su ekološki značajne u vodenim ekosustavima kao primarni producenti i izvor hrane za ptice, ribe i male beskralješnjake. Posljednjih godina sve je veći broj dokaza da vodene makrofite mogu akumulirati velike količine metala tijekom izloženosti metalnim ionima ili nanočesticama.
Cilj: Cilj istraživanja je doprinijeti boljem razumijevanju potencijalno štetnih učinaka koloidnog srebra (Ag) na vodeni ekosustav te fizioloških i biokemijskih odgovora vodenih biljaka izloženih koloidnom srebru podrijetlom iz komercijalnih proizvoda sredstava za dezinfekciju.
Materijali i metode: Kulture *L. gibba* uzgajane su u modificiranoj tekućoj, hranjivoj otopini pod kontroliranim uvjetima i zatim prebačene u mješavinu otopina s različitim koncentracijama Ag. Uzorci za analizu prikupljeni su nakon 12, 24 i 48 sati izloženosti Ag. Analizirane su promjene u sastavu neenzimatskih antioksidanasa i aktivnosti antioksidacijskih enzima, kao i akumulacija vodikovog peroksida i produkata lipidne peroksidacije, kako bi se istražio potencijal Ag pri uzrokovanju oksidacijskog stresa.
Rezultati: Najveće povećanje aktivnosti antioksidacijskih enzima – askorbat peroksidaze (70%), gvajakol peroksidaze (46%), katalaze (78%), superoksid dismutaze (24%), kao i najveća akumulacija vodikovog peroksida (27%) i produkata lipidne peroksidacije (73%), u odnosu na kontrolnu skupinu, utvrđena je nakon 48 sati izlaganja tretmanu najveće koncentracije Ag (1000 µg/L). Povećanjem koncentracije ionskog koloidnog Ag u potpunoj hranjivoj otopini zabilježeno je najveće smanjenje prirasta biljke, za 34% pri 500 µg/L i 55% pri 1000 µg/L.
Zaključak: Korištenje komercijalno dostupnih proizvoda koji sadrže koloidno srebro i posljedično nakupljanje srebra, iona i nanočestica u okolišu, predstavlja potencijalni izvor toksičnosti za primarne producente u vodenim ekosustavima.

Ključne riječi: *koloidno srebro, vodena vrsta, akumulacija srebra, oksidativni stres, okolišni rizik*

Keywords*: colloidal silver, aquatic plant, silver accumulation, oxidative stress, environmental risk*

UČINAK KADMIJA NA METABOLIZAM GLUTATIONA U TRI KULTIVARA SOJE (*GLYCINE MAX* L.)

EFFECT OF CADMIUM ON GLUTATHIONE METABOLISM IN THREE SOYBEAN CULTIVARS (*GLYCINE MAX* L.)

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Introduction: Different anthropogenic activities caused an increase in cadmium (Cd) content in the environment, resulting in higher Cd accumulation in plants. Induction of oxidative stress is the main mechanism of Cd toxicity. In order to defend against Cd induced stress plants developed different antioxidative and detoxification mechanisms in which glutathione plays an important role. Different plant species, but also different cultivars of the same species vary in the terms of Cd accumulation and tolerance.
Aim: The aim of this study was to determine the effect of Cd on glutathione metabolism in the shoot of three Croatian soybean cultivars (*Glycine max* L.).
Materials and methods: Cultivars used in this study were chosen based on preliminary research which determined different Cd accumulation potentials in seeds (Korana>Lucija>Ika). Soybean was hydroponically cultivated and exposed to Cd (25, 50 and 100 μM) for seven days. Along with the measurement of total (tGSH), reduced (GSH) and oxidized glutathione content (GSSG), activities of some enzymatic components of the glutathione metabolism were also measured, such as glutathione reductase (GR), ascorbate peroxidase (APX), glutathione S-transferase (GST) and glutathione peroxidase (GPX).
Results: Contents of tGSH and GSH were significantly increased in Lucija and Ika while they were unchanged in Korana. Content of GSSG remained unchanged. Activity of GR was higher at lower Cd concentrations. Only highest Cd concentration in Lucija increased APX activity while in other two cultivars APX activity was either unchanged or decreased. Activity of GPX was decreased while the GST activity was only increased at the highest Cd concentration.
Conclusion: The effect of Cd on glutathione metabolism depended upon Cd concentration and the cultivar. Lucija showed the most effective response to Cd and can be characterized as the most tolerant cultivar.

Key words: *antioxidative response, cadmium, glutathione metabolism, soybean*

Ključne riječi: *antioksidacijski odgovor, kadmij, metabolizam glutationa, soja*

VRIJEME CVJETANJA I STERILNOST CVJETOVA RAZLIČITIH SORTI MASLINA

FLOWERING PHENOLOGY AND FLOWER QUALITY OF DIFFERENT OLIVE CULTIVARS

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Introduction: Olive (*Olea europaea* L.) is one of the most important fruit crops in the Mediterranean. The choice of olive cultivars and their reproductive traits are important prerequisites to achieve high and regular productivity. In Croatian olive growing regions, flowering occurs between the beginning of May and the middle of June. Simultaneous flowering periods enable cross-pollination and high fruit set in different cultivars. Olive tree produces both perfect (hermaphrodite) and staminate (male) flowers within the inflorescences that contain varying number of flowers.
Aim: The objective of this study was to analyse the architecture of inflorescences (the number of flowers per inflorescence) and flower quality (the percentages of staminate flowers) in different cultivars used for olive oil and table olive production and to assess the phenological stages of the olive trees.
Materials and methods: The reproductive traits were analysed in eleven olive cultivars ('Coratina', 'Drobnica', 'Frantoio', 'Itrana', 'Koroneiki', 'Lastovka', 'Leccino', 'Levantinka', 'Oblica', 'Pendolino', 'Santa Catarina'). The flowering periods were assessed by visual examination of tress including start of flowering, full bloom and the end of the flowering period. The number of flowers per inflorescence and flower quality (the percentages of staminate flowers) were observed using 30 inflorescence per tree.
Results: Simultaneous flowering periods were found for most of the studied cultivars. The earliest start of flowering was recorded for 'Santa Catarina' and 'Koroneiki' and the latest for 'Drobnica', 'Itrana' and 'Leccino'. The highest number of flowers per inflorescence was found for 'Levantinka' (23.30), 'Oblica' (22.71) and 'Koroneiki' (21.6) and the lowest for 'Leccino' (12.28), 'Santa Catarina' (13.13) and 'Drobnica' (13.8). The percentages of staminate flowers ranged from 2.8% ('Koroneiki') to 87% ('Itrana').
Conclusion: This study has shown that the high level of pistil abortion is characteristic of the table olive cultivars. When planning the planting of new orchard, it is desirable to plant cultivars with simultaneous full-flowering periods.

Keywords: *Olea europaea L., flowering period, staminate flowers*

Ključne riječi: *Olea europaea L., cvjetanje, sterilnost cvjetova*

HISTOLOŠKA ANALIZA GLIKOGENA U HEPATOCITIMA MIŠEVA KOJIMA SU ISKLJUČENI TFF2 I TFF3 GENI

HISTOLOGICAL ANALYSIS OF GLYCOGEN CONTENT IN HEPATOCYTES OF TREFOIL FACTOR FAMILY 2 AND TREFOIL FACTOR FAMILY 3 KNOCK.OUT MICE

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Introduction: Trefoil factor family (Tff) peptide 2 and Tff peptide 3 are small peptides mostly present in gastrointestinal mucosa and are related to mucosal protection and restitution. Tff3 is included in hepatic glucose metabolism, and both Tff2 and Tff3 peptide stimulate beta-cell proliferation in the pancreatic islets.
Aim: The Aim of the study was to determine statistically significant differences in the presence of glycogen in wild type mice and the TFF2 and TFF3 knock-out mice.
Materials and methods: 6 month-old wild type, Tff2 knock-out and Tff3 knock-out mice were used; N=18 (6 per group). All the animals were fed standard laboratory chow ad libitum. After sacrificing, livers were isolated, fixed in formalin and paraffin-embedded. 6 µm slides were cut and stained using PAS method. Areas of strongest glycogen staining were chosen for analysis and glycogen-positive cells were counted within regions of 100 cells. Using an arbitrary semi-quantitative scale, the signal was classified as weak (0-35 positive cells), medium (36-70 positive cells) and strong (71 or more positive cells).
Results: Samples from Tff3 knock-out mice had the strongest glycogen staining. Statistical analysis confirmed this finding (p=0.005, Mann-Whitney U test, comparing wild type and Tff3 knock-out group). Samples from Tff2 knock-out mice were heterogenous in glycogen distribution, but overall signal did not differ statistically from that of wild-type mice (p=0,5).
Conclusion: Our results support the notion that Tff3 peptide is included in hepatic glucose and glycogen metabolism. Tff3 knockout animals had more glycogen positive cells and those cells had more glycogen accumulated in them when compared to wild type and Tff2 knockout animals. In conclusion, further metabolism-oriented studies are needed to elucidate the exact metabolic role of Tff3 peptide, and its effect on physiological and pathological processes in liver.

Key words: *glycogen, histomorphology, liver, TFF2, TFF3.*

Ključne riječi: *glikogen, histomorfologija, jetra, TFF2, TFF3.*

RAZNOLIKOST SLABIH TKIVNIH ANTIGENA HA-1, HA-2 I HA-8 U HRVATSKOJ POPULACIJI

POLYMORPHISM OF MINOR HISTOCOMPATIBILITY ANTIGENS HA-1, HA-2 AND HA-8 IN THE CROATIAN POPULATION

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Introduction: Minor histocompatibility antigens (mHAgs) are polymorphic, endogenously synthetized products recognized by alloreactive T cells when bound to human leukocyte antigen (HLA) molecules. Recipients of allogenic bone marrow grafts run the risk of graft-versus-host disease (GvHD), even when the donor is an HLA-identical sibling. This may be caused by disparities in mHAgs between the donor and the recipient.
Aim: Aim of this study was to examine allele, genotype and phenotype frequencies of mHAgs HA-1, HA-2 and HA-8 since they are restricted by the HLA-A2, the most frequent HLA antigen in the Croatian population (26.9%), making them most clinically relevant.
Materials and methods: Polymorphism of HA-1, HA-2 and HA-8 was investigated in 102 healthy, unrelated individuals who originate from different regions of Croatia and form a representative sample of the Croatian population. Genomic DNA was obtained by extraction from peripheral blood and subsequently typed using polymerase chain reaction with sequence-specific primers (PCR-SSP).
Results: The HA-1 antigen was present in the population with allele frequency of 41.7% for HA-1H and 58.3% for HA-1R. Genotype frequencies were 17.7% for HH, 48.0% for HR and 34.3% for RR, and 65.7% of samples had an HA-1 positive phenotype. Allele frequencies for the HA-2 locus were 76.5% for HA-2V and 23.5% for HA-2M. Genotype frequencies were 58.8% for VV, 35.3% for VM and 5.9% for MM. HA-2 positive phenotype was observed in 94.1% of samples. The frequency of HA-8R allele was 39.1% and for HA-8P 60.9%. Genotype frequencies were 15.7% for RR, 47.0% for RP and 37.3% for PP. HA-8 positive phenotype was found in 62.7% of the samples.
Conclusion: This study was necessary to provide information on distribution of mHAgs in Croatian population, allowing further investigations on mHAgs' role in GvHD following hematopoietic stem cell transplantation in HLA identical donor-recipient pairs with mHAg disparities.

***Keywords**: HLA, minor histocompatibility antigens, hematopoietic stem cell transplantation, graft versus host disease*

***Ključne riječi**: HLA, slabi tkivni antigeni, transplantacija matičnih krvotvornih stanica, bolest presatka protiv primatelja*

UTJECAJ PUŠENJA NA ZDRAVLJE USNE ŠUPLJINE; ZNANJE I STAJALIŠTA STOMATOLOGA I STUDENATA STOMATOLOGIJE

IMPACT OF SMOKING ON ORAL HEALTH: KNOWLEDGE AND ATTITUDES OF DENTISTS AND DENTAL STUDENTS

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Introduction: Tobacco smoking is considered the leading preventable cause of death in the world. As a result of smoking, more than 9,000 people die in Croatia every year. Due to the nature of their work, dentists are in an ideal position to advise their patients about smoking cessation.
Aim: The aim of this study was to evaluate smoking habits, level of knowledge and attitudes towards smoking among students of the School of Dental Medicine, University of Zagreb and compare them to attitudes of practicing Croatian dentists.
Materials and methods: The study was carried out among 1st and 6th year dental students at the School of Dental Medicine, University of Zagreb and dentists employed in primary practice throughout Croatia. A total of 159 subjects (51 1st and 53 6th year dental students and 55 dentists) participated in the study.
Results: The prevalence of smoking was highest among 6th year dental students (39, 6%). It slightly decreased among dentists (34, 5%), while least smokers were found among first year dental students (7, 8%). The majority of dental student smokers expressed a desire to stop smoking (66, 7% of 1st year dental student smokers and 76% of 6th year dental student smokers), while less than half of dentist smokers had the desire to stop - only 45, 8% of them. Dental students of the 1st and 6th year of the study showed a statistically significantly higher level of desire for education about harmful smoking effects and patients counselling to quit smoking compared to dentists.
Conclusion: The data gathered in this study indicate that it is necessary to increase awareness among dental professionals about harmful effects of smoking on oral and general health. Also, their awareness about the central role of healthcare workers as promoters of a healthy lifestyle among patients should be raised.

Key words: *tobacco smoking; oral health; dental students; dentists*

Ključne riječi: *pušenje duhana; oralno zdravlje, studenti stomatologije, stomatolozi*

BIOMARKERI ALERGIJE U DJECE PREOSJETLJIVE NA ALERGEN *Dactilis glomerata U* SEZONI CVJETANJA RDOBRADE

BIOMARKERS OF ALLERGY IN CHILDREN HYPERSENSITIVE TO THE ALLERGEN *Dactilis glomerata* DURING THE COCKFOOT POLLINATION SEASON

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Uvod: Izloženost peludnim alergenima ovisi o sezoni cvjetanja biljaka, klimatskim odnosno meteorološkim prilikama. Klimatske promjene, globalno zatopljenje te zagađenost zraka značajno su povećali rast alergenskih biljaka te posljedično broj peludnih zrnaca u zraku. Osobe s izraženom preosjetljivošću razvit će simptome alergijske reakcije već pri vrlo maloj koncentraciji peluda u zraku.
Cilj: Usporediti vrijednosti biomarkera alergije, ukupnoga IgE (uIgE), specifičnoga IgE (sIgE), indeksa specifičnoga IgE (IsIgE) i eozinofilnih granulocita prema alergenu trave rdobrade *Dactilis glomerata (Dac g)* i eozinofilnih granulocita u sezoni cvatnje i izvan nje.
Ispitanici i metode: Odabrana su djeca s dokazanom preosjetljivošću na alergene rdobrade (N=80). Svrstana su u dvijeskupine: Skupina 1: djeca obrađena u sezoni peludacije (N=64); Skupina 2: djeca obrađena izvan sezone peludacije (N = 16). Koncentracija odabranih parametara određena je standardiziranim laboratorijskim postupcima.
Rezultati: Vrijednosti svih ispitivanih biomarkera alergije, osobito sIgE i IsIgE , bile su statistički značajno veće u skupini djece testirane u sezoni cvjetanja rdobrade nego izvan sezone ($p<0,05$). Posljedično tome je i korelacija između biomarkera bila bolja u sezoni izloženosti uzročnome alergenu.
Zaključak: Dobiveni rezultati ukazuju da bi biomarkere alergija, a osobito sIgE i IsIgE trebalo određivati u vrijeme izloženosti alergenu *Dactilis glomerata.*

***Ključne riječi**: alergija, biomarkeri, IgE , Dactilis glomerata, pelud trava*

Key words: *allergy, biomarkers, IgE, Dactilis glomerata, tree pollen*

PROCJENA NUTRITIVNOG STANJA OSOBA STARIJE DOBI U AMBULANTI OBITELJSKE MEDICINE S OBZIROM NA ANTROPOMETRIJSKE MJERE I KOMORBIDITET

ASSESSMENT OF NUTRITIONAL STATUS OF ELDERLY PEOPLE IN A PRACTICE OF FAMILY MEDICINE IN RELATION TO ANTHROPOMETRIC INDICES AND COMORBIDITY

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Uvod: Danas postoje razni alati za ispitivanje stanja uhranjenosti, a MNA test (*eng. Mini Nutritional Assessmnet*) je najkorišteniji. Antropometrijske mjere i BMI (*eng. Body Mass Index*) važan su dio kroničnih panela u ambulantama obiteljske medicine.
Cilj istraživanja: Ispitati postoji li razlika u stanju uhranjenosti starijih osoba iznad 65 godina s kroničnim bolestima, s obzirom na socio-demografske značajke i antropometrijske mjere, broj i vrstu kroničnih bolesti te ispitati postoji li povezanost između antropometrijskih mjera s postignućem na MNA testu
Ispitanici i metode: Presječno je u istraživanje uključeno 207 pacijenata u dobi od 65 god. i više, koji su posjetili ambulantu obiteljske medicine u Domu zdravlja Slavonski Brod, tijekom razdoblja od 3 mjeseca 2019.godine. Prilikom posjete bilježile su se antropometrijske mjere i te MNA test za ispitivanje stanja uhranjenosti, a podaci o kroničnim bolestima i kroničnoj terapiji korišteni su iz računalnog program Medicus.
Rezultati: Prema rezultatu MNA testa, 143 ispitanika (69,1%) pokazali su dobro stanje uhranjenosti, 62 ispitanika (30%) pokazala su rizik za pothranjenost, a tek 2 ispitanika (0,9%) pothranjenost. Medijan ispitanika je 72godine, medijan indeksa tjelesne mase je 27,89 kg/m2. U 64,73% ispitanika prisutan je multimorbiditet, 42% uzima više od tri lijeka u kroničnoj terapiji, a u većine je dobro očuvana bubrežna funkcija. Žene starije od 65 godina pokazuju veći rizik za nastanak malnutricije. Osobe normalne uhranjenosti bile su u prosjeku mlađe i većeg opsega od osoba nepovoljne uhranjenosti, koje su u prosjeku starije i manjeg opsega struka.
Zaključak: Starije osobe u Domu zdravlja Slavonski Brod pokazuju dobro stanje uhranjenosti prema MNA testu i antropometrijskom praćenju. Važno je redovito pratiti stanje uhranjenosti, kako bi se prevenirala progresija bolesti, smanjila hospitalizacija i dodatni troškovi liječenja. Sustavan alat probira na malnutriciju još uvijek nije uveden u RH.

Ključne riječi: *malnutricija, MNA, komorbiditet, antropometrijske mjere*

Keywords: *malnutrition, MNA, comorbidity, anthropometry*

SEKVENCIRANJE SLJEDEĆE GENERACIJE U NOVOROĐENČADI S KOLODIJSKOM MEMBRANOM

NEXT GENERATION SEQUENCING IN NEONATES PRESENTING WITH COLLODION BABY SYNDROME

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Introduction: Collodion baby (CB) is a rare condition characterized by the presence of parchment or-cellophane-like collodion membrane encompassing the whole body. CB is a genetically heterogeneous disorder that usually presents with lamellar ichthyosis (LI) or congenital ichthyosiform erythroderma (CIE). Other less common disorders as self-improving collodion ichthyosis, Netherton syndrome, Gaucher disease type 2, Chanarin-Dorfman syndrome, ectodermal dysplasia or Sjögren Larsen syndrome may also be responsible for this phenotype.
Aim: Clinical and molecular analysis of patients presenting with collodion baby syndrome.
Materials and methods: Clinical exome sequencing (CES) was performed in 4 patients with referral diagnosis of CB using Illumina TruSight One Kit.
Results: CES analysis revealed mutations in *ALOX12B, SPINK5, NIPAL4* and *TGM1* genes. In patient 1 (P1), we found a homozygous mutation in the *ALOX12B* gene, known to cause self-improving collodion ichthyosis. This was consistent with a rapid resolution of almost all skin lesions. P2 and P3 developed Netherton syndrome. In P2 compound heterozygous mutations in the *SPINK5* gene confirmed the diagnosis. In P3 no causative genetic variations were found. In P4, presenting with CB evolving to LI, we detected two heterozygous variants, one in *NIPAL4* gene (likely pathogenic) and other in *TGM1* (uncertain significance).
Conclusion: Clinical evolution of CB is hard to predict as clinical presentation and severity may vary from mild to life-threatening. CES provided a timely and precise diagnosis in most of our patients which is important for treatment planning, disease prognosis and genetic counselling of affected families.

Key words: *collodion baby, clinical exome sequencing, congenital ichthyosis*

Ključne riječi: *kolodijska membrana, sekvenciranje kliničkog egzoma, kongenitalna ihtioza*

POVEZANOST HLA-DRB1 ALELA SA POJAVOM ORALNOG LIHEN PLANUSA U PACIJENATA SA PODRUČJA JUŽNE HRVATSKE

ASSOCIATION OF HLA-DRB1 ALLELES WITH ORAL LICHEN PLANUS (OLP) IN SOUTHERN CROATIA REGION

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Introduction: Human leukocyte antigen (HLA) system is highly polymorphic family of genes which has been linked with various immune and autoimmune diseases. Oral lichen planus (OLP) is a chronic autoimmune disease that affects oral mucosa and one of the most common dermatological diseases manifested in oral cavity. The aetiology of OLP is unknown, however, it is considered that the pathogenesis of the disease is related to T-cell-mediated response.
Aim: The aim of this study was to investigate the possible association of HLA-DRB1 alleles with OLP among patients from southern Croatia region(SC).
Materials and methods: The group of patients included 55 patients clinically diagnosed with oral lichen planus. Control group consisted of 99 healthy blood donors from SC. Genotyping for alleles of HLA-DRB1 loci was performed PCR-SSO method on a Luminex platform. Allele frequencies in both group of patients and control group were calculated by direct counting and compared for significance by Fisher's exact test (statistical significance was considered at $p<0,05$).
Results: Comparisons between HLA-DRB1 allele frequencies in control and patient groups showed significant increase of HLA-DRB1*01 allele frequency (9,6 % vs 17,3%, p=0,039). No differences were found between other alleles and the disease, although we noticed slight increase in HLA-DRB1*03 and DRB1*07 alleles, while the frequency of HLA-DRB1*11 was lower in group of patients.
Conclusion: In this study we detected significant increase in HLA-DRB1*01 allele frequency in a group of patients with OLP, which is in line with the previous results in Mexican, Italian and American populations. These results indicate a possible correlation between HLA-DRB1*01 allele and OLP and could be considered as a useful tool in differential diagnosis of OLP from other oral cavity diseases. Given the small sample number of patients involved in this study further investigation with a larger sample number from different populations is needed.

***Key words**: Human leukocyte antigen, oral lichen planus, PCR-SSO, HLA-DRB1*

***Ključne riječi**: Humani leukocitni antigen, oralni lihen planus, PCR-SSO, HLA-DRB1*

UČINCI STRESA ENDOPLAZMATSKOG RETIKULUMA U JETRI MIŠEVA S NEDOSTATKOM *TREFOIL FACTOR FAMILY* 3 PROTEINA

EFFECTS OF ENDOPLASMIC RETICULUM STRESS IN THE LIVER OF TREFOIL FACTOR FAMILY 3 PROTEIN DEFICIENT MICE

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Introduction: Endoplasmic reticulum (ER) stress, a condition caused by the accumulation of unfolded proteins inside the ER, has been recognized as a major pathological mechanism in a variety of conditions, including cancer, metabolic and neurodegenerative diseases. Trefoil factor family (TFFs) comprises three proteins (TFF1, TFF2, and TFF3) present in epithelial tissue, blood, neural tissues, and liver. TFFs play a multifunctional role in the protection of mucosa through participation in apoptosis, cell migration, and immune response. The complete diminishment of liver *Tff3* expression is noticed as one of the first events in the early phase of diabetes development in Tally Ho mice, multigenic models of diabesity. Human TFF3 was found to be a strong predictor of neurodegeneration in Alzheimer's disease.
Aim: This study aimed to assess the effects off ER stress in the liver of Tff3 deficient mice, to consequently elucidate the role of Tff3 in different pathologically relevant pathways.
Materials and methods: We have developed a new congenic mouse model *Tff3*-/-/C57BL/6N from mixed background strain (C57BL/6N /SV129) by using speed congenics approach. ER stress was evoked by tunicamycin (3μg/g of body weight) and mice were sacrificed 24 hours later. We monitored gene expression of different ER and oxidative stress markers, and relevant proinflammatory cytokines in liver tissue of wild-type (C57BL/6N) and Tff3 deficient mice.
Results: Altered gene expression was noticed at the level of several inflammation-related genes (*Cxcl*, *Il-6*, *Tnfα*, *Mcp1*, *Il-1β*) and oxidative stress genes (*Cox1*, *Gpx1*). The markers of unfolded protein response (*Bip*, *Grp94*, *Chop*) were not significantly affected by Tff3 deficiency.
Conclusion: Tff3 deficiency does not affect liver response at the level of monitored unfolded protein response activation. Changed liver expression of oxidative stress and cytokine genes points towards Tff3 protein participation in the homeostasis of these disease-relevant pathways.

Ključne riječi: *stres ER, jetra, Tff3, oksidativni stres, citokini*

Keywords: *ER stress, liver, Tff3, oxidative stress, cytokines*

KOMBINIRANI UTJECAJ CILENGITIDA I PAKLITAKSELA NA STANIČNE LINIJE TROSTRUKO NEGATIVNOG TUMORA DOJKE I MELANOMA

COMBINED EFFECT OF CILENGITIDE AND PACLITAXEL IN TRIPLE NEGATIVE BREAST CANCER AND MELANOMA CELL LINES

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Uvod: Integrini su heterodimerni membranski receptori sastavljeni od α i β podjedinice. Integrini αvβ3 i αvβ5 predstavljaju metu za terapiju tumora jer su pojačano eksprimirani na stanicama brojnih tumora, uključujući melanom i karcinom dojke. Jedan od dostupnih inhibitora integrina je cilengitide, ciklički Arg-Gly-Asp peptid. Integrini signal u stanici prenose putem protein kinaza, a jedna od najvažnijih je kinaza fokalne adhezije (engl. *focal adhesion kinase*, FAK).
Cilj: Cilj ovog rada je u tri stanične linije trostruko negativnog karcinoma dojke i četiri stanične linije melanoma istražiti kombinirani učinak cilengitida i protutumorskog lijeka paklitaksela te utvrditi promjene u količini i lokalizaciji fosforiliranog oblika kinaze fokalne adhezije pFAK(Y397). Rezultati će pokazati može li inhibicija integrina povećati osjetljivost na paklitaksel te može li se ova kombinacija koristiti za liječenje tumora.
Materijali i metode: Korištene su stanične linije melanoma (RPMI-7951, MeWo, A375, MDA-MB-435S) te karcinoma dojke (MDA-MB-436, MDA-MB-468, MDA-MB-231). Preživljenje stanica izloženih cilengitidu i paklitakselu mjereno je MTT testom, ekspresija pFAK (Y397) određena je metodom Western blot, dok je njegova lokalizacija utvrđena metodom imunofluorescencije.
Rezultati: Cilengitide je povećao osjetljivost staničnih linija MDA-MB-231, MDA-MB-436, A375, RPMI-7951 i MDA-MB-435S na paklitaksel, a smanjio je osjetljivost u staničnim linijama MDA-MB-468 i MeWo. Cilengitide je smanjio količinu proteina pFAK(Y397) u svim staničnim linijama, osim u staničnoj liniji MeWo, te je u stanicama melanoma uočena korelacija između smanjenja ekspresije i povećanja osjetljivosti na paklitaksel. U staničnoj liniji MDA-MB-231 pokazano je da nakon izlaganja cilengitidu većina pFAK(Y397) nestaje iz fokalnih adhezija i pojavljuje se u citoplazmi.
Zaključak: Cilengitide povećava osjetljivost 5 od 7 istraživanih staničnih linija na paklitaksel. Prethodnim pokusima pokazano je da utišavanje integrina ne smanjuje osjetljivost na paklitaksel niti u jednoj od navedenih staničnih linija, stoga zaključujemo da je to bolja terapijska kombinacija nego što je kombinacija s cilengitidom.

Ključne riječi: *melanom, karcinom dojke, integrini*

Keywords: *melanoma, breast cancer, integrins*

KARAKTERIZACIJA OXA-48 PRODUCIRAJUĆIH SOJEVA BAKTERIJE *KLEBSIELLA PNEUMONIAE* IZOLIRANIH IZ MOKRAĆE IZVANBOLNIČKIH PACIJENATA U ZAGREBU

CHARACTERIZATION OF OXA-48 PRODUCING *KLEBSIELLA PNEUMONIAE* STRAINS ISOLATED FROM URINE OF NON-HOSPITALIZED PATIENTS IN ZAGREB

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Uvod: Tijekom 2016. zabilježeno je epidemijsko širenje OXA-48 pozitivnih enterobakterija sa sjeverozapada u druge dijelove Hrvatske. U ranoj fazi diseminacije bile su zahvaćene bolnice, ali u posljednje tri godine zapaženo je širenje u domove za starije osobe.
Cilj: Cilj istraživanja bio je analizirati 98 sojeva OXA-48producirajućih sojeva bakterije *Klebsiella pneumoniae* izoliranih iz mokraće izvanbolničkih pacijenata od 2016-2018 u Zagrebu.
Materijali i metode: Antimikrobna osjetljivost i produkcija karbapenemaza fenotipski je određena. Prijenos cefotaksimske rezistencije testirana je konjugacijom upotrebom *E.coli* J53 rezistentnom na natrijev azid. Lančana reakcija polimerazom (PCR) je upotrijebljena za detekciju gena koji kodiraju β-laktamaze proširenog spektra (ESBL),plasmidski-posredovane AmpC β-laktamaze, karbapenemaze klase++ A, B i D, te qnr fluorokinolonsku resistenciju.
Rezultati: Izolati su bili uniformno rezistentni na amoksicilin i amoksicilin-klavulanat, piperacilin-tazobaktam, cefazolin i cefuroksim. Rezistencija na kolistin utvrđena je u dva soja. Pedeset i pet izolata (56%) fenotipski su bili pozitivni na ESBL. ESBL-pozitivni izolati bili su rezistentni na cefalosporine proširenog spektra, cefepim, gentamicin i ciprofloksacin. Četrnaest od 32 testirana ESBL-pozitivna soja imala su CTX-M-15 β-laktamazu, a njih 12 TEM-1. PCR je utvrdio OXA-48 karbapenemazu klase D kao jedini mehanizam karbapenemske rezistencije. L plasmid je nađen u svih testiranih izolata. Od 98 testiranih sojeva njih 54 (55%) izolirano je u bolesnika iz domova za starije osobe u Zagrebu. Ti izolati su pokazivali značajno nižu stopu dodatnog ESBL pozitiviteta nego sojevi izolirani u izvanbolničkih pacijenata koji nisu bili u domu ($p<0.01$), te vrlo niske MIK-ove imipenema i meropenema koje su za većinu izolata bile u osjetljivom rasponu vrijednosti (MIC< 2mg/L).
Zaključak: OXA-48 bila je jedina karbapenemaza utvrđena u gerijatrijskih izvanbolničkih pacijenata u Zagrebu. Poznato je da L plazmidu nađen u testiranih sojeva nosi bla_{OXA-48}gene i odgovoran je za njihovu brzu diseminaciju.

Ključne riječi: *Klebsiella pneumoniae, OXA-48, domovi, ESBL, rezistencije*

Key words: *Klebsiella pneumoniae, OXA-48, LTCF, ESBL, resistance*

POVEZANOST ODABRANIH JEDNONUKLEOTIDNIH POLIMORFIZAMA GENA UKLJUČENIH U METABOLIZAM FOLATA S PRIROĐENIM SRČANIM GREŠKAMA U OSOBA S DOWNOVIM SINDROMOM

ASSOCIATION OF SELECTED FOLATE-PATHWAY SINGLE NUCLEOTIDE POLYMORPHISMS WITH CONGENITAL HEART DEFECTS IN INDIVIDUALS WITH DOWN SYNDROME

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Introduction: Down syndrome (DS) is often associated with congenital heart defects (CHDs), affecting approximately half of infants with trisomy 21 (Ts21). CHDs primarily involve septal structures, including atrial and ventricular septal defects and complete atrioventricular canal defects. As cardiac involvement varies among individuals with DS, genetic modifiers have been considered. Folate metabolism genes are biologically plausible candidates during embryonic heart development, but previous studies have reported inconsistent associations between their single nucleotide polymorphisms (SNPs) and CHDs.

Aim: This study aimed to characterise the spectrum of CHDs in individuals with DS and to investigate the association of SNPs in the 5-methyltetrahydrofolate-homocysteine methyltransferase reductase (rs1801394) and 5,10-methylenetetrahydrofolate reductase (rs1801133 and rs1801131) genes with CHDs in DS.

Materials and methods: The study included 155 individuals with DS. The selected SNPs were genotyped using the polymerase chain reaction–restriction fragment length polymorphism (PCR-RFLP) method, with statistical significance set at $p < 0.05$.

Results: CHDs were identified in 50% of participants. The proportion was higher among females than males, although this difference was not statistically significant (54% vs 46%, $p = 0.077$). Atrial septal defect (ASD) was the most frequent cardiac abnormality in both females and males (32% vs 22%). The analysed SNPs showed no significant differences in distribution or frequency between participants with and without CHDs ($p > 0.05$).

Conclusion: The frequency of CHDs and female predominance were consistent with previous reports. The investigated folate metabolism SNPs were not significantly associated with CHDs in this study.

Keywords: *5,10-methylenetetrahydrofolate reductase, 5-methyltetrahydrofolate-homocysteine methyltransferase reductase, congenital heart defects, Down syndrome, folate, single nucleotide polymorphisms*

Ključne riječi: *5,10-metilentetrahidrofolat reduktaza, 5-metiltetrahidrofolat-homocistein metiltransferaza reduktaza, Downov sindrom, folati, jednonukleotidni polimorfizmi, prirođene srčane greške*

RAZLIKE U NAGIBU STRAŽNJEG ZIDA ZGLOBNE KVRŽICE IZMEĐU SREDNJOVJEKOVNE I SUVREMENE LJUDSKE POPULACIJE U HRVATSKOJ

DIFFERENCES IN ARTICULAR-EMINENCE INCLINATION BETWEEN MEDIEVAL AND CONTEMPORARY HUMAN POPULATIONS IN CROATIA

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Introduction: Temporomandibular joint morphology, and consequently, articular-eminence inclination depends on the functional and mechanical properties of the craniofacial skeleton (mechanical loading as the result of function – masticatory forces in connection with consumption of different food types). In terms of prosthodontics, values of articular-eminence inclination are important in construction, and adjustments of articulators. But little is known about the articular eminence inclination in medieval human population. **Aim:** The study aimed to determine the values of, and differences between the articular-eminence inclination of medieval and contemporary human population. **Materials and methods:** The study was carried out on two dry skull groups. The first group consisted of 30 dry skulls from the early medieval culture groups (ME) of Croatia (4 subgroups), and the other consisted of 137 recent dry skulls from the osteological collection of the Institute of Anatomy (IA) in Zagreb. The articular-eminence inclination was measured in relation to the Frankfurt horizontal plane on digital images of the skull's two lateral views using VistaMetrix 1.38 computer software. **Results:** No statistically significant ($p>0.05$) differences between left and right-side inclinations were found among ME skulls, and IA skulls. The mean measured value of articular-eminence inclination among IA skulls (61.99º) was statistically significantly higher ($p<0.05$) than mean articular-eminence inclination value (45.4º) of ME group. Among ME cultural groups, mean value of articular-eminence inclination from Radasinovci cultural subgroup (52.98º) was statistically significantly higher ($p<0.05$) than mean articular-eminence inclination values from other ME cultural subgroups. **Conclusion:** Values of articular-eminence inclination vary a lot. Differences between left and right-side inclinations were insignificantly but confirmed natural left–right side's asymmetry. Values of articular-eminence inclination differ between IA and ME groups, as well as between ME subgroups, probably due to different type of food consumption in medieval time, and consequently different masticatory loads, and forces.

***Keywords**: articular-eminence, Croatia, inclination, medieval, temporomandibular joint*

***Ključne riječi**: Hrvatska, nagib, rednjovjekovlje, temporomandibularni zglob,* zglobna kvržica

RAZLIKE U PROCJENI DIOBE STANICA RAKA DOJKE IMUNOHISTOKEMIJSKIM BOJENJEM JEZGRINA Ki67 ANTIGENA

VARIATION IN BREAST CARCINOMA CELL PROLIFERATION ASSESSMENT ACCORDING TO IMMUNOHISTOCHEMICAL NUCLEAR ANTIGEN Ki67 STAINING

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Introduction: Breast cancer is the most common malignancy in women. In about 80% of new cases, the disease is often detected at an early stage, and in about 20% of cases, the disease is already at an advanced stage.
Aim: To determine whether the variability in the Ki67 antigen detection prevents the correct classification of breast cancer into subgroups depending on the detected Ki67.
Materials and methods: The study was conducted on 50 tumor tissue samples of patients with stage T1 invasive breast cancer of no special type, diagnosed at the Osijek Clinical Hospital Centre in 2017. Hystology slides were immunohistochemically dyed with the Ki67 antigen photographed, and a share of Ki67 positive cells was detected on at least 500 tumor cells in different regions of the tumors: in the peripheral and central regions, within the "hot spots" and beyond, as well as in three randomly selected regions.
Results: The cluster analysis has categorized 7 methods of sampling Ki67 into two groups: group 1 (tumor margins, outside hot spots, random sample 2, and tumor centre) χ^2=18.98, p<0,001, with a coefficient of concordance of 0.12, and group 2 (hot spots, random samples 1 and 3) χ^2=56,28, p<0,001, with a coefficient of concordance of 0.56. These methods determined 2 subgroups and then there was a statistical comparison as to whether the similar indicators were distributed equally among the patients (χ^2=31.53, p<0,001). In 5 patients the indicators were distributed unequally, meaning that the variation was 10%.
Conclusion: There was a 10% variability in the data obtained from the Ki67 breast cancer antigen reading which prevents the exact classification of breast cancers into the subgroups on which the determination of patient treatment depends.

Key words: *breast cancer, Ki67 expression, proliferation marker, prognosis*

Ključne riječi: *karcinom dojke, ekspresija Ki67, proliferacijski indeks, prognoza*

UNUTARTUMORSKA HETEROGENOST MIKROSATELITNE NESTABILNOSTI (MSI I EMAST) SPORADIČNIH KARCINOMA DEBELOG CRIJEVA

MSI AND EMAST INTRATUMOR HETEROGENEITY IN MOLECULAR PROFILING OF SPORADIC COLORECTAL TUMORS

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Uvod: Sporadični karcinom debelog crijeva jedan je od najčešćih zloćudnih tumora i jedan od vodećih uzroka smrti od raka u svijetu. Pokazano je da različit odgovor pacijenata na antitumorsku terapiju može biti povezan s heterogenošću unutar ovog tumora. Mikrosatelitna nestabilnost (MSI) jedan je od mehanizama koji doprinosi nastanku i napredovanju tumora te se povezuje s heterogenošću tumora. EMAST je drugi tip mikrosatelitne nestabilnosti koji se javlja na specifičnim tetranukleotidnim mikrosatelitnim ponavljanjima te je povezan s upalom i lošom prognozom u oboljelih. Heterogenost tumora na molekularnoj razini već je opisana u prethodnim istraživanjima najčešćih mutacija u tumorima debelog crijeva (*KRAS*, *TP53* i *PIK3CA*). Međutim, istraživanja tumorske heterogenosti povezane s MSI i EMAST u tumorima debelog crijeva su rijetka.
Cilj: Cilj ovog istraživanja je ispitati unutartumorsku heterogenost mikrosatelitne nestabilnosti tipa MSI i EMAST u sporadičnim karcinomima debelog crijeva.
Materijali i metode: Istraživanje je provedeno na 25 oboljelih od sporadičnih karcinoma debelog crijeva. Deoksiribonukleinska kiselina (DNK) je izolirana iz 4 različita područja tumora te iz tkiva pripadajuće normalne sluznice. Specifični MSI (D2S123, D5S346, D17S250, BAT25, BAT26) i EMAST (D20S85, MYCL1, D9S242, D20S82, D8S321) mikrosatelitni biljezi umnoženi su lančanom polimeraznom reakcijom (PCR) te analizirani elektroforezom u gelu poliakrilamida.
Rezultati: Nestabilnost tipa MSI je bila prisutna u 32% ispitivanih uzoraka, a nestabilnost tipa EMAST u 48% ispitivanih uzoraka. Kod MSI i EMAST pozitivnih tumora nestabilnost je bila zastupljena u svim dijelovima tumora ali se razlikovala profilom u pojedinom tumoru. Najveća nestabilnost uočena je na MSI biljegu D17S250 te EMAST biljezima MYCL1 i D20S82.
Zaključak: Ovo preliminarno istraživanje je pokazalo vrlo heterogene MSI i EMAST profile u sporadičnim tumorima debelog crijeva. Uočena tumorska heterogenost mogla bi potencijalno poslužiti kao biljeg odgovora na terapiju. Međutim, dobivene rezultate istraživanja je potrebno provjeriti na većem broju uzoraka te na parafinskim uzorcima.

Ključne riječi: *sporadični karcinom debelog crijeva, tumorska heterogenost, MSI, EMAST*

Keywords: *sporadic colorectal carcinoma, tumor heterogeneity, MSI, EMAST*

KARAKTERIZACIJA CIJELOG GENOMA REASORTANTA GENOTIPA G3P[8] ROTAVIRUSA SLIČNIH KONJSKIM SOJEVIMA U HOSPITALIZIRANE DJECE U HRVATSKOJ

WHOLE GENOME CHARACTERISATION OF AN EQUINE-LIKE ROTAVIRUS A REASSORTANT G3P[8] STRAIN IN HOSPITALISED CHILDREN IN CROATIA

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Uvod: Infekcije rotavirusima su vodeći uzrok akutnog gastroenteritisa u ljudi i životinja. Rotavirusi se dijele u devet vrsta (rod *Rotavirus*, porodica *Reoviridae*), a vrsta rotavirus A (RVA) ima najveći utjecaj na ljudsko zdravlje, posebno kod djece do pet godina starosti. Klasifikacija RVA je temeljena na određivanju genotipa barem dva genomska segmenta (VP7 i VP4) ili genotipske konstelacije cijelog genoma. S obzirom na segmentiranost RVA genoma i nerijetku pojavu koinfekcija s različitim RVA sojevima, novi emergentni sojevi, a među njima i humano-animalni reasortanti, mogu se pojaviti uslijed genomskog preslagivanja.
Cilj: Cilj ovog istraživanja bio je utvrditi genetičku raznolikost RVA u hospitaliziranoj pedijatrijskoj populaciji, te okarakterizirati genome atipičnih sojeva RVA.
Materijali i metode: Ukupno 188 uzoraka stolice hospitaliziranih pacijenata (većinom djece do pet godina starosti iz bolničkih centara u Zagrebu, Splitu i Osijeku) inficiranih RVA pretraženo je na prisutnost genoma RVA PCR-om u stvarnom vremenu. Korištenjem semi-nested multipleks PCR protokola u kombinaciji sa sekvenciranjem po Sangeru određena je genetička raznolikost RVA prisutnih kod hospitalizirane djece. Provedena je filogenetska analiza, te je potom primijenjeno sekvenciranje nove generacije (NGS) u svrhu cjelogenomske karakterizacije atipičnih sojeva RVA G3P[8] (N= 3).
Rezultati: Kao prevladavajući genotip RVA u pedijatrijskoj populaciji Republike Hrvatske u periodu od 2018. - 2019. utvrđen je G3P[8] prisutan u 55% uzoraka, među kojima je dominirao atipični G3P[8] soj s genskim segmentom VP7 podrijetlom od konjskih RVA sojeva. Primjenom NGS-a identificiran je cijeli genom atipičnog soja dokazanog u Hrvatskoj po prvi puta. Za razliku od tipične Wa-lika G3P[8] konstelacije ovaj reasortant posjeduje DS-1-like genotipsku konstelaciju. Filogenetskom analizom potvrđena je visoka sličnost sa sojevima istog genotipa dokazanih ranije u Europi.
Zaključak: Nadzor i genetska karakterizacija sojeva RVA koji cirkuliraju u populaciji pedijatrijskih pacijenata će se nastaviti i u narednim godinama kako bi se utvrdila geografska i sezonska dinamika ovih emergentnih sojeva genotipa G3.

Ključne riječi: *Rotavirus A, reasortant, djeca, cjelogenomsko sekvenciranje*

Key words*: Rotavirus A, reassortant, children, whole-genome sequencing*

ARSEN U KOSI STANOVNIKA ISTOČNE HRVATSKE

ARSENIC IN HAIR OF EASTERN CROATIA'S POPULATION

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Rad je dio Projekta Ministarstva znanosti, obrazovanja i sporta RH pri Medicinskom fakultetu Osijek "Istraživanje dugotrajnih posljedica ratnih zbivanja na zdravlje stanovništva (MB: 219-1080315-0288)" pod vodstvom prof. dr.sc. Dinka Puntarića

Uvod: Problem koncentracije arsena u okolišu Istočne Hrvatske je predmet istraživanja posljednjih 20-ak godina, a zajedničko je zemljama u okruženju (Srbija, Rumunjska) koje pripadaju dunavskom slivu.
Cilj: Cilj istraživanja bio je istražiti dugotrajnu izloženost arsenu analizom sadržaja arsena u kosi i procijeniti utječe li smanjenje unos arsena pitkom vodom na izmjerene vrijednosti arsena u kosi kod ispitanika koji su promjenili izvor pitke vode.
Materijali i metode: Uzorci kose kod odraslih ispitanika uzeti su u područjima: Vladislavci, Čepin, Osijek, Dalj, Vukovar, Vinkovci i Slavonski Brod i analizirani pomoću ICP -MS metode.
Rezultati: Ovisno o istraživanom području, prosječne su koncentracije bile u rasponu od 0,018 (Vinkovci) do 32 µg g-1 (Vladislavci) pri čemu je u potonjem znatno premašila gornju granicu referentne vrijednosti (0,31 µg g-1). Koncentracije arsena iz Našica, Osijeka, Slavonskog Broda, Vukovara i Vinkovaca bile su unutar ili nešto iznad maksimalno dopuštenog referentnog raspona. Najviše su koncentracije zabilježene kod ispitanika su u naseljima Vladislavci (647,60 µg g-1) i Čepin (526,78 µg g-1).
Zaključak: Rezultati pokazuju da su vrijednosti arsena u kosi kod ispitanika kojima je omogućen pristup nezagađenoj vodi (Našice, regionalno vodocrpilište za istočnu Slavoniju u Sikirevcima) niže u odnosu na ispitanike iz sliva rijeke Drave, što ukazuje na mogućnost smanjenja izloženosti i u skladu s tim, prevenciju pobola od specifičnih bolesti povezanih sa ekspozicijom arsenu.

Ključne riječi: *arsen, kosa, Hrvatska, ICP-MS*

Key words: *arsenic, hair, Croatia, ICP-MS*

DISTRIBUCIJA HLA-DRB1 ALELA POVEZANIH SA POJAVOM REUMATOIDNOG ARTRITISA U SPLITSKO-DALMATINSKOJ ŽUPANIJI

DISTRIBUTION OF HLA-DRB1 ALLELES ASSOCIATED WITH RHEUMATOID ARTHRITIS IN SPLIT-DALMATIA COUNTRY IN SOUTHERN CROATIA

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Introduction: Human leukocyte antigen (HLA) is considered to be the most important genetic risk factor for rheumatoid arthritis (RA), a chronic autoimmune disease of unknown etiology. According to previous reports, HLA-DRB1 loci alleles HLA-DRB1*01, -*04, -*10 and -*14 (SE – "shared epitope" alleles") are known to be associated with the onset and the severity of RA.
Aim: The aim of this study is to evaluate distribution of HLA-DRB1 alleles in patients with RA in Sinj-region(SR) and in the rest of Split-Dalmatia County(SDC), as well as to determine the association of HLA-DRB1 alleles with the severity and progression of RA in these patients.
Materials and methods: Low-resolution HLA-DRB1 allele genotyping on samples from 74 patients and 80 healthy subjects in both SR and SDC region was performed using PCR-SSO method on Luminex® system.
Results: Patients from SR showed significantly higher frequency of HLA-DRB1*04 allele than patients from the rest of the SDC (18.2% vs. 9.5%; P=0.014), while allele frequency of HLA-DRB1*15 was significantly lower (7.4% vs. 16.2%; P=0.010) in SR patients. There was no difference in the frequency of HLA-DRB1*01, HLA*10 and HLA*14 alleles between patients (P=0.119, P=0.325, P=0.278, respectively). The frequency of acute phase reactants and rheumatoid factor was higher in shared epitope positive patients from SR compared with the shared epitope positive patients from the rest of the SDC (P=0.014, and P=0.004, respectively). SE positive patients from SR also showed higher disease activity (P=0.043), more severe degree of functional disability (P<0.001) and more severe radiological damages (P=0.003), compared with the SE-positive patients from the rest of the SDC.
Conclusion: These findings indicate that higher incidence of more severe forms of rheumatoid arthirtis in Sinj region could be explained with higher frequency of certain shared epitope HLA-DRB1 alleles (HLA-DRB1*04) in patients from SR compared to patients from the rest of SDC.

Key words: *Human leukocyte antigen, rheumatoid arthritis, HLA-DRB1, PCR-SSO*

Ključne riječi: *humani leukocitni antigen, reumatoidni artritis, HLA-DRB1, PCR-SSO*

UČINAK NEAROMATSKOG NAFTALANA NA METABOLIČKU I PROLIFERACIJSKU AKTIVNOST HaCaT STANICA

THE EFFECT OF NON-AROMATIC NAPHTALAN ON THE METABOLIC AND PROLIFERATIVE ACTIVITY OF HaCaT CELLS

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Uvod: Nearomatski visokosteranski naftalan (NAVS) je posebna frakcija nafte koja je iznimno bogata steranima, a dobiva se gotovo potpunim uklanjanjem policikličkih aromatskih struktura. NAVS je bezbojno ulje ugodnog mirisa, a geogeni sterani ga svojom molekularnom strukturom čine vrlo sličnim bioaktivnim spojevima kao što su kortikosteroidi i vitamin D. Ta strukturna sličnost objašnjava uspješnu upotrebu NAVS-a u liječenju psorijaze.
Cilj: Cilj istraživanja je *In vitro* ispitati učinak nearomatskog visoko steranskog naftalana (NAVS) na vijabilnost i proliferacijsku aktivnost HaCaT stanica, koje predstavljaju model epitela.

Metode: Istraživanje je provedeno na staničnim linijama HaCaT (*human keratinocyte cell line*) u hranjivom mediju DMEM (*Dulbecco's modified Eagle's medium*). HaCaT stanice su tretirane s različitim koncentracijama NAVS-a u obliku nanočestica pripravljenima uz PAT (površinski aktivne tvari) te s PAT tijekom 24 sata.
Rezultati: Primjenom MTT testa određena je vijabilnost tretiranih i kontrolnih stanica, a rezultati pokazuju da je u svim testiranim uzorcima došlo do statistički značajnog smanjenja metaboličke aktivnosti u odnosu na kontrolu. Najmanja metabolička aktivnost izmjerena je uz najveću koncentraciju PAT (60,5%), dok je od tretiranih uzoraka pri najmanjoj koncentraciji NAVS+PAT metabolička aktivnost iznosila 92,1 % od kontrole. Određivanjem katalitičke aktivnosti laktat dehidrogenaze (LD) u mediju praćeno je oštećenje stanične membrane. Najveći porast aktivnosti u mediju iznad stanica od 7,7 puta pokazuje uzorak s najvećom koncentracijom PAT, dok se uz manje koncentracije PAT i NAVS+PAT aktivnost LD u mediju mjeri znatno manje. Proliferacijska aktivnost HaCaT stanica određena je na temelju ekspresije Ki-67 u stanicama. Proliferacijski indeks u svim testiranim uzorcima kreće se u vrlo uskom rasponu, te ne postoji statistički značaj.
Zaključak: NAVS ne djeluje na smanjenje rasta patološki nepromijenjenih keratinocita, ne utječe na proliferaciju HaCaT stanica, što ga čini zdravstveno sigurnim za upotrebu na sluznici usne šupljine.

Ključne riječi: *naftalan, vijabilnost, marker proliferacije, HaCaT keratinociti*

Key words*: naphthalan, viability, proliferation markers, HaCaT keratinocytes*

UČINAK LIJEČENJA OSTEOARTRITISA KOLJENSKOG ZGLOBA PRIMJENOM MATIČNIH STANICA - RANI REZULTATI

THE EFFECT OF TREATMENT OF KNEE JOINT OSTEOARTHRITIS USING STEM CELLS - EARLY RESULTS

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Introduction: Osteoarthritis (OA) is a degenerative joint disease, which mainly affects the articular cartilage and subchondral bone. Several treatment options are available for OA, conservative or surgical. Regenerative cells such as adult stem cells from adipose tissue are part of the stromal vascular fraction, these can be easily and efficiently isolated and rapidly from adipose tissue by liposuction and subsequent aspirate treatment. The most likely mechanism of action is a combination of stem cell implantation on damaged tissue and the secretory effect of these cells.
Aim: The aim of the study was to examine the efficacy of treating osteoarthritis of the knee joint using stem cells.
Materials and methods: The study included 10 patients with second-degree arthrosis, who were operated on at the Department of Orthopedics, Clinical Hospital Center Osijek. Preoperative patients were treated with standard radiological knee imaging and MRI. Graft obtained by liposuction was centrifuged and mixed with platelet rich plasma (PRP), and was then applied to the diseased joint. Three months after the procedure, patients were contacted by phone and the data obtained was statistically processed.
Results: After 3 months of application of stem cells to the knee joint, a statistically significant improvement occurs if joint swelling is observed, pain while standing, pain when walking on a flat surface, and pain when walking up the stairs.
Conclusion: Although our study was conducted on a small number of subjects and the time was relatively short, patients showed significant functional improvement in clinical troubles. Further research and follow-up are needed to provide treatment guidelines for this method, by using longer follow-up, and more subjects.

Keywords*: treatment, stem cell, osteoarthritis*

Ključne riječi*: liječenje, matična stanica, osteoartritis*

PRIMJENA PEKTINA IZ KORE MANDARINE *(C. reticulata)* U BIOGENOJ SINTEZI SELENOVIH NANOČESTICA

APPLICATION OF MANDARIN *(C. reticulata)* PEEL PECTINS IN BIOGENIC SYNTHESIS OF SELENIUM NANOPARTICLES

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Introduction: Biogenic synthesis of nanoparticles (NPs) has a potential to generate novel NPs with greater bioavailability and biocompatibility compared to chemically synthetized NPs. Mandarin peel has been recognized as the valuable source of functional ingredients such as polyphenols (hesperidin, tangeretin and nobiletin) and dietary fibers (pectin), that could be utilized in nanoparticle synthesis.
Aim: In this study, we optimized the procedure of synthesis of selenium nanoparticles (SeNPs) using raw pectin (RP) and purified pectin (PP) from mandarin peel extract.
Materials and methods: Nanoparticles were synthetized by a simple method of reduction of sodium selenite to elementary selenium using ascorbic acid. Raw pectin (RR) and purified pectin (PP) from mandarin peel served as coating agent for nanoparticle stabilization. Polyvinylpyrrolidone (PVP) was used as stabilizing agent for chemically synthetized NPs (cnSeNPs). Electrophoretic light scattering and dynamic light scattering were used to asses zeta potential and size distribution of nanoparticles. Antiradical activity was evaluated by utilizing TEAC method. Reductive potential was investigated using Folin-Ciocalteu method.
Results: The biogenically synthesized selenium nanoparticles (bnSeNPs) stabilized with RP and PP showed particle size distribution comparable to cnSeNPs with average diameter of 230 nm and 290 nm, respectively. Surface charge of bnSeNPs showed more negative values than for cnSeNPs (-35 mV in relation to -10 mV) indicating better stability of obtained colloidal system. BnSeNPs coated with RP and PP showed significantly higher antioxidant activity (24.5 and 46.3 g TE/mol Se, respectively) in comparison to cnSeNPs (1.91 g TE/mol Se) that were probably associated to polyphenols remaining in pectin fractions.
Conclusion: Obtained results revealed the potential of mandarin peel as a source of natural coating materials for development of green synthesis processes of SeNPs achieving improved functional properties.

Keywords: *pektin, nanočestice selena, kora mandarine, biogena sinteza, antioksidativna aktivnost, pectin, selenium nanoparticles, mandarin peel, biogenic synthesis, antioxidant activity*

Ključne riječi: *pektin, nanočestice selena, kora mandarine, biogena sinteza, antioksidativna aktivnost*

BRZA IDENTIFIKACIJA PATOGENA IZ POZITIVNIH HEMOKULTURA UPOTREBOM METODE FILMARRAY

RAPID IDENTIFICATION OF PATHOGENS FROM POSITIVE BLOOD CULTURES BY USE OF THE FILMARRAY BLOOD CULTURE IDENTIFICATION PANEL

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Introduction: Sepsis constitute a major diagnostic and therapeutic problem. In patients with severe sepsis and septic shock mortality ranges from 40 to 60%. Gold standard for microbiological diagnostics of sepsis are blood cultures. In patient with septic shock every hour of delayed adequate antimicrobial treatment is associated with significant increase in mortality. Rapid identification of pathogens from positive blood culture is therefore an important goal of the clinical microbiology laboratory.
BioFire FilmArray blood culture ID (BCID) panel (BioMerieux, France) is a two-stage, multiplexed PCR test, carried out in a closed, disposable, single-use pouch. It requires about 2 minutes for assay setup and provides results in approximately 1 h.
Aim: The aim of the study was to evaluate the use of BCID panel in positive blood cultures at the Clinical Department of Clinical and Molecular Microbiology, University Hospital Centre Zagreb.
Materials and methods: BCID panel was used simultaneously with routinely used metod for identification, namely matrix-assisted laser desorption/ionization mass spectrometry (MALDI-TOF MS) from the subculture. Concordance in identification as well as time difference between panel and routinely used method was compared.
Results: Twelve positive blood cultures bottles from eleven patients were analyzed. Out of twelve positive blood culture bottles, use of BCID panel achieved identification result in ten bottles. Discrepancy beetween the BCID panel result (*Staphylococcus*) and routinely used method (*Acinetobacter junii*) was found in one bottle. *A. junii* is not present in BCID panel and direct Gram stain from positive blood culture demonstrated Gram negative bacilli and Gram positive cocci in clusters.
Conclusion: BCID panel is valuable and useful tool for rapid identification of pathogens from positive blood cultures. The user should be aware of method limitations including spectrum of panel (24 pathogens and three resistance genes) and cost.

Key words: *sepsis, blood cultures, pathogens*

Ključne riječi: *sepsa, hemokultura, patogeni*

GAMMA NOŽ

GAMMA KNIFE

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Uvod: Gama nož je sustav dizajniran za liječenje prvenstveno tumora mozga. Gama nož koristi energiju gama (γ-) zraka iz jezgre radioaktivnog kobalta(Co60)koje narušavaju ili uništavaju deoksiribonukleinsku kiselinu (DNK) tumorskih stanica. Prije primjene energija gama zraka, potrebno je odrediti, pomoću računalne tomografije konusnim zrakama(CBCT) i/ili magnetskom rezonancom (MR),mjesto lokalizacije tumora.
Cilj: Usporediti dvije metode stereotaktičke lokalizacije u planiranju liječenja gama nožem: računalnu tomografiju konusne zrake (CBCT) i magnetsku rezonancu (MR). Istraživanjem se želi utvrditi postoji li razlika između dviju metoda, posredno i koja je bolja u pogledu točnosti i optimizacije rada.
Materijali i metode: Računalna tomografija konusne zrake korištena je za definiranje stereotaktičkog prostora oko modela Elekta Film Pinprick, a zatim obrađena filmom na mjestu. Uklonjene su poznate količine iz središta, a zatim je snimljen CBCT-om i registriran referentnom CBCT slikom kako bi se utvrdilo odgovaraju li izmjereni pomaci poznatima. Retrospektivno je procjenjeno deset magnetskih rezonancija (MR) bez okvira i 10 MR-a temeljenih na okviru na CBCT fuzijama. Stereotaktičke koordinate definirane CBCT-om i MR-om uspoređivane su na Elekta 8 cm kugličnom modelu, antropomorfnom modelu i stvarnim podacima o pacijentu.
Rezultati: CBCT može precizno otkriti pomake s točnošću od 0,1 mm i 0,5 °. U svim su slučajevima postojale neke nepodudarnosti između MR lokalizacije i CBCT-a koja je ponekad mala, a ponekad i do 0,43 mm u modelu i 1,54 mm u stvarnih pacijenata.
Zaključak: Računalna tomografija s konusnim snopom pokazuje dosljednu točnost u definiranju stereotaktičkog prostora. Kompjutorizirana tomografija s konusnim snopom može precizno odrediti pomake koji se javljaju u stereotaktičkom prostoru koji se ne mogu primijeniti upotrebom MR metode. Korištenje CBCT lokalizacije nudi priliku za pojednostavljivanje tijeka rada iz perspektive pacijenta i kliničke slike. Također prikazuje položaj pacijenta neposredno prije liječenja.

Ključne riječi: *CBCT, gamanož, gamazrake, MR*

Keywords: *CBCT, gamma knife, gamma rays, MR*

(korišteno uz suglasnost Ivane Vrdoljak, mag. educ. phys. et math., Jasmine PavkovićBarki, univ. spec. oec.)

AUGMENTACIJU ALVEOLARNE KOSTI INJEKCIJSKIM BIOMATERIJALIMA

ALVEOLAR BONE AUGMENTATION BY INJECTABLE BIOMATERIALS

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Introduction: Human bone considers to be a golden standard for clinical bone augmentation, but also have some shortcomings like another surgical site, limited availability, morbidity, risk of hemorrhage, and edema. Different bone substitutes have been developed to avoid complications involved with the use of autogenous bone. There are different forms of biomaterials on the market, such as powders, blocks, and granules in many sizes but handling with them is difficult, especially when applying bone material in three- dimensional cavities. These disadvantages lead to the development of materials in an injectable form.
Aim: The aim of this article was a systematic literature review of the injectable biomaterials effect on new bone formation in the maxilla and mandible, in animal and human studies.
Materials and methods: Systematic searches of electronic databases were conducted under the aim of this paper. A search of literature through the PubMed and Cochrane databases found 470 articles, of which 26 were included in the study (21 animal studies and 5 human studies). A small amount of researches has been conducted on this topic in the field of dental medicine.
Results: Most studies on the injectable form of biomaterials refers to synthetic bone grafting materials. The highest value of new bone formation regarding bone percentage is produced at 3 months after procedures.
Conclusion: Drawing conclusions across the studies is difficult because the studies are different in many aspects, such as differences in animal models, biomaterials that are used, and follow up period. Nevertheless, some important speculations may rise. The growing use of injectable form biomaterials has become highly popular due to their viscosity and ease of handling. By knowing this, it might lead to a better clinical result and reduction of surgery time.

Keywords: *injectable biomaterials, bone augmentation*

Ključne riječi: *injekcijski biomaterijali, augmentacija kosti*

PERIOPERACIJSKI POSTUPCI (TROMBOPROFILAKSA) KOD PACIJENATA KOJI UZIMAJU DIREKTNE ORALNE ANTIKOAGULANSE U ORALNOJ KIRURGIJI

PERIOPERATIVE MANAGEMENT (TROMBOPROPHYLAXIS) OF PATIENTS RECEIVING DIRECT ORAL ANTICOAGULANTS IN DENTOALVEOLAR SURGERY

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Introduction: New oral anticoagulants are also called „non-vitamin K antagonist oral anticoagulants“ and „directly acting oral anticoagulant“. They have more flexible pharmacokinetic properties that allow short-term interruption without increasing the risk of relapsing thrombotic or cardiovascular events. Before providing dental treatment for a patient taking novel oral anticoagulants their bleeding risk must be assessed. This paper involves consideration of both likely risk of bleeding associated with the required dental procedure and patient`s individual level of bleeding risk presented in the tables. Dental procedures that are likely to cause bleeding are categorized in table as either low-risk or high-risk procedures. Tables in the paper intend to be a guide and bleeding risk should be judged based on individual case. Careful patient selection helps preventing bleeding complications.

Aim:The number of geriatric patients seeking dental practice is ever-rising because of increased life expectancy, also with problem of increased medical conditions. One of very common patients in dental clinics are patients on novel oral anticoagulants (NOACs). These patients present a challenge due to their increased risk of bleeding. Hemostasis is crucial for success of oral surgical treatment so aim of the paper is to optimize the management of the dental patients on novel oral anticoagulants in a standardization of treatment protocol.

Materials and methods: Analysis and literature review provides guidelines for practical use.Results: This paper involves consideration of both likely risk of bleeding associated with the required dental procedure and patient`s individual level of bleeding risk presented in the tables. Dental procedures that are likely to cause bleeding are categorized in table as either low-risk or high-risk procedures. Tables in the paper intend to be a guide and bleeding risk should be judged based on individual case. Careful patient selection helps preventing bleeding complications.

Conclusion: The perioperative management of patients using novel oral anticoagulants who undergo dental procedures represent a common clinical problem. Therapy with new oral anticoagulants brings new challenges for dental practitoners assessing the risk versus benefit of cessation versus non-cessation of anticoagulant therapy for dental treatment. Conclusion: Further studies are needed to establish evidence-based guidelines for the perioperative treatment of these patients.

***Key words**: novel oral anticoagulants, oral surgery, perioperative treatment*

***Ključne riječi**: novi oralni antikolagulansi, oralna kirurgija, preoperativni tretman*

PRELIMINARNA HISTOLOŠKA ANALIZA DVA BIOMATERIJALA NAKON PREZERVACIJE ALVEOLE

PRELIMINARY HISTOLOGICAL ANALYSIS OF TWO BIOMATERIALS AFTER SOCKET PRESERVATION

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Uvod: Nakon vađenja zuba, alveolarni greben prolazi kroz dimenzionalne promjene. Razni biomaterijali koriste se za smanjenje gubitka volumena alveolarnog grebena nakon vađenja zuba stimulirajući stvaranje nove kosti. Injekcijski Maxresorb®je dvofazni materijal sastavljen od gela na vodenoj bazi sa 60% hidroksiapatita i 40% β-tri kalcij fosfata. BioOss® je porozna mineralna matrica kosti koja se proizvodi uklanjanjem svih organskih komponenata iz goveđe kosti.
Cilj: Cilj ove studije bio je ispitati regenerativni potencijal dvofaznog kalcijevog fosfata (BCP) (injekcijski Maxresorb®), procjenom histoloških rezultata biopsije kostiju i njihovom usporedbom s anorganskom goveđom kosti (BioOss®), nakon razdoblja cijeljenja od 6 mjeseci.
Materijali i metode: U prvoj fazi 30 pacijenata nasumce je podijeljeno u dvije grupe po 15 osoba. Prva grupa podvrgnuta je vađenju zuba i augmentaciji injekcijom Maxresorb®-a. U drugoj grupi prezervacija alveole izvedena je pomoću BioOss®-a. U obje grupealveole su bile prekrivene nativnomkolagenom membranom. Nakon 6 mjeseci cijeljenja, biopsijom su se uzeli uzorci tkiva neposredno prije postavljanja implantata.
Rezultati: Preliminarna histološka analiza otkrila je preostale BCP čestice u bliskom kontaktu s novonastalom kosti u slučaju injekcijskogMaxresorb®-a. Histološki uzorci BioOss®-a također su pokazali ugradnju čestica hidroksiapatita u novomineraliziranu kost. U oba materijala nije bilo histoloških znakova upale tkiva. Nadalje, oba materijala pokazala su lako rukovanje, a pacijenti nisu imali komplikacija tijekom razdoblja cijeljenja.
Zaključak: Iako je uključen mali broj pacijenata, zajedno s preliminarnom prirodom studije, histološka analiza ukazuje na osteokonduktivna svojstva oba materijala uključena u ovo istraživanje. Međutim, potrebna su dodatna istraživanja kako bi se prikazale histološke i kliničke značajke injekcijskog Maxresorb®-a i iBioOss®-a u smislu njihovih osteokonduktivnih svojstava.

Ključne riječi: *histologija; dentalna implantologija; ksenograft; aloplastični materijal*

Keywords:*histology; dental implantology; xenograft; alloplasticmaterial*

QUADRATUS LUMBORUM BLOK – BOLJI NEPOREDNI ISHOD PACIJENATA PODVRGNUTIH OPERACIJAMA NA ABDOMENU

QUADRATUS LUMBORUM BLOCK - BETTER IMMEDIATE PATIENT OUTCOME IN ABDOMINAL SURGERY

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Introduction: Since first described in 2007, quadratus lumborum block (QLB) is proved as a useful method for postoperative pain control. Recent opioid epidemics motivates medical practitioners to reduce opioid intake intraoperatively and postoperatively, and regional analgetic blocks are a promising alternative.
Aim: The aim of our study was to evaluate the effect of single-shot quadratus lumborum block (QLB) on immediate patient outcomes in open and laparoscopic abdominal surgery as well as reducing opioid usage.
Materials and methods: We examined 53 abdominal surgery patients who received the QLB, either pre- or post-operatively during a six months period, and matched them to 23 patients who did not receive a block for the same type of surgery. The ultrasound-guided QLB type 2 was performed predominantly with ropivacaine, in doses of up to 3 mg/kg and volume of approximately 0.3 ml/kg. Patient refusal was the only exclusion criteria. Patients were examined for sensation changes in trunk area 5 and 15 minutes after QLB application. Intraoperatively, patients' heart rate and blood pressure changes were monitored. Postoperatively, patients were observed for wakefulness, mobility, pain while still, and pain in Valsalva maneuver or during coughing. NRS (numerical rating scale) and VAS (visual analog scale) values were noted as well as opioid and NSAID administration 48 hours postoperatively.
Results: QLB patient group immediately after surgery was more alert, mobile and had reported lower pain levels. Use of opioids was significantly reduced both during and two days following surgery in the QLB group, while the use of NSAID was not significantly different. No complications of the block were observed.
Conclusion: QLB improves early patient outcome in terms of postoperative pain and reduction of the need for opioid analgesics in abdominal surgery patients.

Key words: *QLB (quadratus lumborum block), opioids, NSAIDS*

Ključne riječi*: QLB (quadratus lumborum blok), opioidi, NSAID*

KLINIČKA MEDICINA
/
CLINICAL MEDICINE

PRIKAZ HITNOG OFTALMOLOŠKOG PACIJENTA

AN OCULAR EMERGENCY-CASE REPORT

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Uvod: Prikazati rijetki slučaj netraumatskog subperiostalnog orbitalnog krvarenja (NTSOH) u trudnoći povezanog s povišenim intrakranijalnim venskim tlakom.
Opis bolesnika: 24-godišnja trudnica u drugom trimestru trudnoće došla je u našu bolnicu s kliničkom slikom bezbolne proptoze lijevog bulbusa, ograničenom bulbomotorike i dvoslikama, bez znakova kompresije vidnog živca. Trudnoća je bila dobro kontrolirana, bez komplikacija. U dijagnostičkoj obradi učinili smo magnetsku rezonancu i ultrazvučni pregled orbite. Ultrazvučno se tvorba prikazala kao homogena, hipoehogena, dobro ograničena uz nisku reflektivnost u medijalnom dijelu krova orbite. Dijagnoza je potvrđenamagnetskom rezonancom koja je navedenu tvorbu prikazala kao homogenu bikonveksnu leziju. Pacijentica je kontrolirana ambulantno uz ultrazvučno praćenje te u narednim tjednima dolazi do spontanog povlačenja subperiostalnog orbitalnog krvarenja. Kompletni oftalmološki pregled bio je uredan nakon dva i pol mjeseca praćenja.
Zaključak: U slučajevima NTSOH bez kompresije vidnog živca preporučujemo konzervativno liječenje uz ultrazvučno praćenje.

Ključne riječi: *netraumatsko orbitalno krvarenje, subperiostalno krvarenje, trudnoća, porast intrakranijalnog tlaka, ultrazvučno praćenje*

Keywords*: non-traumatic orbital bleeding, subperiosteal bleeding, pregnancy, increase in intracranial pressure, ultrasound monitoring*

HAMARTOM LARINKSA – PRIKAZ SLUČAJA

LARYNGEAL HAMARTOMA – CASE REPORT

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Introduction: Hamartoma is a tumor-like mass composed of mature tissue or cells that are present in abnormal proportions or show a disorganized arrangement. They are rarely seen in the head and neck area and especially rare in the larynx.
Case description: The authors present a case of rare laryngeal hamartoma of a 43-year-old woman treated for hoarseness and paralysis of the left vocal cord. Hamartomas of the head and neck area are usually manifested by upper respiratory symptoms. In our patient case the first symptom was hoarseness caused by the left vocal cord paralysis. It was a previously healthy woman and was not taking any chronic therapy. Treatment of the patient was surgical with complete excision of the lesion. The diagnosis was confirmed histologically and immunohistochemically. After the treatment, patients voice is satisfying but she reports occasionally hoarseness and shortness of breath. The patient is monitored in ourclinic every 3 months and a follow-up period of at least 5 years is planned.
Conclusion: Laryngeal hamartomas are seen extremely rare. They should be considered as differential diagnosis in patients with stridor, dysphonia and symptoms associated with airway obstruction. The prognosis of patients with laryngeal hamartoma is very good and patients should be monitored regularly.

Keywords: : *hamartoma, larynx, vocal cord paralysis*

Ključne riječi: *hamartom, larinks, pareza glasnice*

PRIKAZ REZULTATA PROVEDBE NACIONALNOG PROGRAMA RANOG OTKRIVANJA RAKA DOJKE, 2006.-2016. GODINA

RESULTS OF THE IMPLEMENTATION OF THE NATIONAL BREAST CANCER EARLY DETECTION PROGRAM, 2006.-2016.

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Uvod: Nacionalni program ranog otkrivanja raka dojke (NPP) provodi se u Republici Hrvatskoj od 2006. te se svake dvije godine na mamografiju pozivaju žene u dobi 50-69 g. Osnovni cilj je otkriti rak dojke u ranoj fazi i time smanjiti mortalitet.
Cilj: Prikazati rezultate provedbe i osnovne evaluacije NPP-au razdoblju od 2006.-2016. godine spajanjem podataka zdravstvenih bazau ciljuodređivanjabroja novootkrivenih slučajeva karcinoma dojke te stadija u kojima su otkriveni.
Metode: Korišteni su podatciRegistra za rak HZJZ, te podatci NPP baze za razdoblje 2006. -2016. godine, isti su prikazani metodama deskriptivne epidemiologije. Za potrebe ove evaluacije, baze su povezane putem jedinstvenog identifikatora.
Rezultati: Povezivanjem baza podataka utvrđeno je da je u okviru NPP-a otkriveno 5.422 karcinoma dojke. Kod žena ciljne skupine, a koje su se odazvale u NPP, većina slučajeva raka dojke, njih 51-60%, dijagnosticirano je u lokaliziranom stadiju, kod 22-28% žena bolest je bila regionalno proširena u trenutku dijagnoze, do 2% dijagnosticirano je s udaljenim metastazama i do 19% stadij prilikom dijagnoze nije prijavljen. Kod žena ciljne skupine, a koje se nisu odazvale u nacionalni program probira, 38-51% slučajeva rak dojke dijagnosticiran je u lokaliziranom stadiju, kod 27-39% žena bolest je bila regionalno proširena u trenutku dijagnoze, 4-9% dijagnosticirano je s udaljenim metastazama i do 18% stadij prilikom dijagnoze nije prijavljen.
Zaključak:. U skupini žena koje su se odazvale na poziv u NPP možemo vidjeti veći udio slučajeva koji su otkriveni uranomstadiju, te manji onih koji su otkriveni s regionalnim i udaljenim metastazama u odnosu na skupinu žena koje se nisu odazvale u NPP. Povoljna distribucija stadija doprinosi smanjenju mnortaliteta od raka dojke što je i konačan cilj programa.

Ključne riječi: *rak dojke, NPP, mamografija*

Keywords: *breast cancer, NPP, mammography*

EFUZIVNO-KONSTRIKTIVNI PERIKARDITIS KAO KASNA KOMPLIKACIJA ENDOMIOKARDIJALNE BIOPSIJE

EFFUSIVE-CONSTRICTIVE PERICARDITIS AS LATE COMPLICATION OF ENDOMYOCARDIAL BIOPSY

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Introduction: Despite the increasing use of alternative techniques, endomyocardial biopsy (EMB) remains the primary method for diagnosing cardiac allograft rejection, and is considered a safe procedure, with a very low complication rate when performed by experienced operators. Major complications include cardiac perforation, tamponade and endocarditis.
Case description: We present a case of a 65-year-old male patient who underwent heart transplantation in August 2014 due to dilative cardiomyopathy. The early postoperative course was complicated with pneumonia and ulcers of sacral region. The last scheduled biopsy was performed in December 2015 and the control transthoracic echocardiography (TTE) was unremarkable. By April 2016 a gradual clinical deterioration was observed, with loss of appetite, weight loss, shortness of breath, effort intolerance and swelling of the abdomen and legs. TTE showed a moderate pericardial effusion around the inferior wall and in front of the right ventricle. Mitral inflow velocities suggested ventricular interdependence, but chamber collapse was not evident. Dense collection of 3.4 cm in the pericardium and pericardial thickening of 1.3 cm was noted on MSCT. Therefore, a localized parietal and visceral pericardiectomy was preformed via sternotomy with intraoperative transesofageal echocardiogram confirming better kinetics of the inferior wall of the left ventricle and the anterior wall of the right ventricle following procedure. The patient was discharged after 3 weeks and was seen in an out-patient clinic a month later with significant improvement in his symptoms. Repeat TTE showed no pericardial effusion.
Conclusion: The diagnosis of effusive-constrictive pericarditis as a late complication of EMB is possible and should considered in new onset worsening of heart transplant recipient. Pericardiectomy should be considered in patients with evolution to constrictive pericarditis and clinical features of severe and persistent heart failure.

Key words: *heart transplantation, endomyocardial biopsy, effusive-constrictive pericarditis*

Ključne riječi: *transplantacija srca, endomiokardijalna biopsija, efuzivno-konstriktivni perikarditis*

5.5-GODIŠNJI DJEČAK S *DE NOVO* SLOŽENOM 2Q3 KROMOSOMSKOM PRERASPODJELOM

A 5.5-YEAR OLD BOY WITH A *DE NOVO* COMPLEX 2Q3 CHROMOSOMAL REARRANGEMENT

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Introduction: Complex chromosomal rearrangements (CCR) are rare events involving three or more cytogenetic breaks, generally on two or more chromosomes. CCR may result fromchromothripsis, a single catastrophic shattering event in one cell, followed by chromoanasynthesis, the repair of the shattered pieces of chromosomes formed after chromothripsis.We report a 5.5-year old boy with complex 2q32q35 interstitial deletions with six breakpoints.
Case Description: A 5.5-year old boy came to our attention due to characteristic facial dysmorphism, feeding difficulties, cleft palate, dental and ear anomaly and patent ductus arteriosus. He also has global developmental delay, autistic traits and behavioral problems.
Materials and methods: The patient and both parents were analyzed by chromosomal microarray (CMA) and cytogenetic analysis.
Conclusion: We discovered three *de novo*2q3 deletions on same chromosome arm: 5.9 Mb deletion in region 2q32.3q33.1, 2.15 Mb deletion in region 2q33.2q33.3 and 7 Mb deletion in region 2q34q35. Thesedeletions involve 47 protein coding genes. *PGAP1* gene is connected with facial development defects,*STK17B*, *LANCL1* and *UNC80* are candidate genes for autistic traits, *ABI2* and *CYP20A1* genes are associated with behavioral problems and *MAP2* gene is associated with Rett-like features. Distal breakpoint of one deletion is close to *SATB2* gene associated with cleft palate and developmental delay.This patient has CCR. Hisphenotypeis in accordance with 2q33 microdeletion syndrome (Glass syndrome). The mechanism of development of CRR on single chromosomal arm could bechromothripsis.Since it is *de novo* CCR, chromothripsis probably occurred during spermatogenesis. To confirm the mechanism of origin of this CCR, additional research is required.

Key words: *chromothripsis, chromoanasynthesis, 2q33 microdeletion syndrome,Glass syndrome*

Ključne riječi: *kromotripsis, kromoanasinteza, 2q33 mikrodelecijskisindrom, sindrom Glass*

PROMJENE STADIJA FIBROZE I STEATOZE U BOLESNIKA S KRONIČNIM HEPATITISOM C KOJI SU LIJEČENI DIREKTNO DJELUJUĆIM ANTIVIRUSNIM LIJEKOVIMA I POSTIGLI TRAJNI VIROLOŠKI ODGOVOR

CHANGES IN THE STAGE OF FIBROSIS AND STEATOSIS IN PATIENTS WITH CHRONIC HEPATITIS C VIRUS TREATED WITH DIRECT-ACTING ANTIVIRAL DRUGS WHO ACHIEVED SUSTAINED VIROLOGICAL RESPONSE

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Uvod: Hepatitis C vodeći je uzrok kronične bolesti jetre, hepatocelularnog karcinoma i važna indikacija za transplantaciju jetre. Glavni cilj liječenja je postizanje trajnog virološkog odgovora (SVR)koji označava negativnu viremiju 12 tjedana nakon završetka liječenja. Uvođenjem antivirusnih lijekova s izravnim djelovanjem utjecalo se na stadij fibroze i steatozejetre nakon liječenja.
Cilj: Analizirati promjenu stadija fibroze i steatoze u bolesnika s kroničnim hepatitisom C(CHC) koji su postigli trajni virološki odgovor.
Materijali i metode: U istraživanje je uključeno 205 bolesnika s CHC-om.Stupanj fibroze (F1-F4) i steatozejetre (S0-S3) određeni su metodom elastografije (FibroScan) prije započinjanja antivirusnog liječenja te nakon postizanja SVR-a. Analizirane su demografske, laboratorijske i kliničke karakteristike bolesnika.
Rezultati: Od 205 bolesnika, 57.6% bili su muškarci. Svi ispitanici uključeni u istraživanje postigli su SVR 12 i/ili 24 tjedna nakon završetka liječenja direktno djelujućim antivirusnim lijekovima. Subtip 1a detektiran je u 53(26.1%), 1b u 92(45.3%), genotip 2 u 3(1,4%), genotip 3 u 46(22,7%) te genotip 4 u 6 (3%) ispitanika. Prije započinjanja antivirusnog liječenja stadij fibroze F1 dokazan je u 25% ispitanika, F2 u 26%, F3 u 8%, dok je 41% ispitanika imalo stadij F4. Nakon antivirusnog liječenja, u grupi bolesnika s inicijalnim stadijem fibroze F4, stadij fibroze se smanjio u F1 kod 13%, u F2 kod 22%, u F3 kod 9%, dok je u 56% ispitanika stadij fibroze ostao nepromjenjen (F4). Prije započinjanja liječenja steatoza nije detektirana (S0) u 56% ispitanika, stadij S1 je imalo 21%, S2 7% i S3 16% bolesnika. Nakon završetka liječenja 22.2% ispitanika s predterapijskim stadijem S3 nisu više imali steatozu (S0), u 22.2% bolesnika steatoza je regredirala u S1, u 11.1% u S2, dok je u 44.4% ispitanika ostala identična (S3).
Zaključak: Antivirusno liječenje i postizanje SVR-a povezani su sa smanjenjem stadija fibroze i steatoze u dijela bolesnika s CHC-om.

Ključne riječi: *kronični hepatitis C, fibroza, steatoza, direktno djelujući antivirusni lijekovi, trajni virološki odgovor*

Keywords: *chronic hepatitis C, fibrosis, stenosis, directly acting antiviral drugs, sustained virological response*

TEŠKO INTRAKRANIJSKO KRVARENJE USLIJED NEONATALNE ALOIMUNE TROMBOCITOPENIJE UZROKOVANE ANTI-HPA-1b PROTUTIJELOM

SEVERE INTRACRANIAL HAEMORRHAGE IN NEONATAL ALLOIMMUNE THROMBOCYTOPENIA CAUSED BY ANTI-HPA-1b ANTIBODY

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Introduction: Fetal/neonatal alloimmune thrombocytopenia (FNAIT) occurs when a woman becomes immunized against fetal platelet antigens inherited from the father, leading to fetal thrombocytopenia. To date, 24 human platelet antigens (HPA) have been described; antibodies against these antigens are designated as anti-HPA. Intracranial haemorrhage (ICH) is the most feared complication of FNAIT. We report a case of FNAIT due to an anti-HPA-1b antibody (Ab) with severe ICH.
Case description: A male infant was born prematurely from an emergency caesarean section due to fetal intrauterine asphyxia and meconium present in the amniotic fluid. Soon after delivery the infant presented with signs of severe ICH. Cranial ultrasound showed severe peri-intraventricular haemorrhage. During the 5^{th} day of life clinical worsening of symptoms was noted; the infant became calm and hypotonic and thus was transferred to neonatal intensive care unit in University Hospital Centre Zagreb. Cranial ultrasound and brain magnetic resonance (MRI) showed 4^{th} degree ICH that probably occurred antenatally. On the 8^{th} day of life, a spontaneous platelet recovery ($176x10^9$/L) was noted. The infant was discharged from the hospital on the 20^{th} day of life with the diagnosis of alloimmune neonatal thrombocytopenia due to anti-HPA-1b Ab.
Materials and methods: Peripheral blood count was tested daily, showing moderate isolated thrombocytopenia. Median platelet number was 77 (range 59-101)$x10^9$/L. Platelet HPA genotyping of maternal and paternal blood showed negative HPA-1b and positive HPA-1b platelets (homozygous), respectively; the mother had strongly positive anti-HPA-1b alloantibodies.
Conclusion: The incidence of FNAIT is estimated to be 1⁄1000-5000 births. ICH is the most serious complication, present in about 8-22% of affected newborns, occurring in utero in 50-80% of cases. FNAIT and severe ICH due to an anti-HPA-1b Ab are a rare events, published in a few case reports.

***Keywords**: Alloimmune neonatal thrombocytopenia, anti-HPA-1b antibody*

***Ključne riječi**: Aloimuna neonatalna trombocitopenija, anti-HPA-1b protutijelo*

VIROLOŠKI RELAPS NAKON LIJEČENJA BOLESNICE INFICIRANE HCV-OM GENOTIPA 3A i MUTACIJOM Y93H S GLECAPREVIROM/PIBRENTASVIROM

VIROLOGIC RELAPSE AFTER TREATMENT OF A PATIENT WITH HCV GENOTYPE 3A AND Y93H MUTATION WITH GLECAPREVIR/PIBRENTASVIR

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Uvod: Antivirusna terapija za liječenje infekcije virusom hepatitisa C (HCV) znatno je poboljšana uvođenjem direktno djelujućih antivirusnih lijekova (DAA) koji selektivno djeluju na nestrukturne proteine virusa. Rezistencija HCV-a na DAA predstavlja potencijalno ograničenje efikasnosti antivirusnog liječenja, naročito mutacija Y93H koja se povezuje s klinički značajnom rezistencijom na prvu generaciju NS5A inhibitora.
Opis bolesnika: Pedesetdevetogodišnja bolesnica inficirana je 1991. putem transfuzije krvi. Unatoč dugom trajanju infekcije, tranzijentnom elastografijom detektiran je nizak stadij fibroze jetre (F1, 7.4 kPa) bez značajnih komorbiditeta. Bolesnica nije prethodno bila liječena DAA te imala početnu viremiju 7,659,530 IU/ml HCV RNA. Liječenje je provedeno tijekom 8 tjedana pri čemu je uslijedio brzi pad viremije uz nedetektabilnu HCV RNA (<12 IU/ml) nakon završetka terapije. Međutim, unutar 12 tjedana nakon prestanka primjene DAA došlo je do virološkog relapsa te bolesnica nije postigla trajni stanični odgovor na virus. Viremija 12 tjedana nakon završetka liječenja iznosila je 957,289 IU/ml HCV RNA. Analizom mutacija koje uzrokuju rezistenciju na NS5A inhibitore detektirana je dobro karakterizirana, s rezistencijom povezana supstitucija Y93H. Prema trenutnim preporukama, započeto je liječenje bolesnice sofosbuvirom/velpatasvirom/voxilaprevirom.
Materijali i metode: Rutinskom dijagnostičkom obradom bolesnice provedenom prilikom ulaska u kliničku skrb određeni su viremija i genotip virusa. Sekvenciranjem regije NS5A virusa Sangerovom metodom te analizom sekvenci u algoritmu Geno2Pheno detektirana je prisutnost Y93H mutacije.
Zaključak: Iako pibrentasvir pokazuje značajno poboljšanu učinkovitost u liječenju hepatitisa C u usporedbi s ostalim NS5A inhibitorima, nedavne publikacije pokazuju kako bi Y93H supstitucija mogla doprinijeti povećanju faktora rezistencije do 3 puta za ovaj DAA *in vitro*. Stoga je moguće kako je u ove bolesnice neuspjeh odgovora na terapiju djelomično povezan s prisutnošću mutacije Y93H.

***Ključne riječi**: virus hepatitisa C, rezistencija, direktno djelujući antivirusni lijekovi, Sangerovo sekvenciranje*

***Keywords:** hepatitis C virus, resistance, direct-acting antivirals, Sanger sequencing*

ILEUS TANKOG CRIJEVA UZROKOVAN ENTEROLITOM BEZ DOKAZA KOLECISTOENTERIČNE FISTULE. PRIKAZ SLUČAJA.

SMALL BOWEL ILEUS CAUSED BY ENTEROLITH WITHOUT EVIDENCE OF CHOLECYSTOENTERIC FISTULA. A CASE REPORT.

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Uvod: Kamen unutar intestinalnog lumena naziva se enterolit. Ileus može biti uzrokovan žučnim kamencem (IŽK), a predstavlja rijedak uzrok opstrukcije crijeva koji se najčešće javlja kod osoba starijih od 65 godina. IŽK javlja se u 1-4% opstrukcija tankog crijeva, a kao komplikacija kod 0.3-0.5% pacijenata sa dokazanom kolelitijazom. Najčešće mjesto impakcije kamena je terminalni ileum. Opstrukcija jejunuma enterolitom je rijedak entitet čija se ispravna dijagnoza preoperativno pogriješi. Kod više od 90% pacijenata se trenutku postavljanja dijagnoze nađe fistula između žučnog mjehura i određenog dijela gastrointestinalnog trakta. Kod 50% pacijenata sa dijagnosticiranim IŽK ranije nisu zabilježeni simptomi od strane hepatobilijarnog trakta. Dijagnoza ovisi o radiološkom pristupu, a zlatni standard predstavlja kompjuterska tomografija(CT).
Opis bolesnika: 66-godišnji pacijent prezentirao se bolovima u abdomenu te je primljen na bolničko liječenje pod dijagnozom akutnog pankreatitisa. Pacijentu je godinu dana ranije učinjena totalna gastrektomija uz formiranje ezofagojejunoanastomoze po Roux-u zbog karcinoma želuca. Na nalazima CT-a učinjenim nakon gastrektomije pratila se nejasna tvorba uz gušteraču koja se pokazivala progresiju u veličini i opisivana kao hematom ili apscesna kolekcija, a ultrazvučno se opisivala i mikrocistolitijaza. Tokom zadnjeg boravka učinjenim CT-om dokaže se ileus tankog crijeva bez jasnog uzroka. Pacijent je podvrgnut eksplorativnoj laparotomiji kojom se verificira perforacija duodenuma i tumefakcija jejunuma, a potom je učinjena enterotomija uz ekstrakciju kamena, koji po patohistološkoj analizi odgovara žučnom kamencu, a isti bi odgovarao spomenutoj tvorbi nejasne etiologije na ranijim nalazima CT-a.
Zaključak: IŽK uz opstrukciju jejunuma kamenom u odsutnosti kolecistoenterične fistule rijetko je zabilježena u literaturi te predstavlja problem u dijagnosticiranju. Za postavljanje adekvatne dijagnoze potreban je visok stupanj sumnje uz upotrebu CT-a kao zlatnog standarda. Laparotomija uz enterotomiju za sada predstavlja najčešću kiruršku metodu rješavanja IŽK uz niski stupanj komplikacija.

Ključne riječi: *enterolit, ileus uzrokovan žučnim kamencem, fistula, CT, gastrektomija, enterotomija*

Key words: *enterolith, gallstone ileus, fistula, CT, gastrectomy, enterotomy*

DOUBLE TRISOMY IN SECOND TRIMESTER OF PREGNANCY

DVOSTRUKA TRISOMIJA U TRUDNOĆI

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Introduction: Double trisomy is extremely rare in liveborns, but it is a relatively common event in pregnancies ending in early abortions and usually involves at least one nonviable trisomy. Prevalence of double trisomy is higher within first trimester spontaneous abortions (~2%) than within the second trimester pregnancy (~0.01%). Double trisomy is associated with advanced maternal age and has a significantly lower gestation survival than single trisomy ones.
Aim: Reporting a rare fetal double aneuploidy in second trimester pregnancies is useful for predicting the possible outcomes, a better understanding of the phenotype-genotype relationship, etiology and the incidence of occurrence of such abnormalities.
Materials and methods: Routine cytogenetic analysis using GTG-banding technique was performed on cultured amniotic fluid cells from samples of amniocentesis (second trimester pregnancies). The indication for amniocentesis was a high risk for trisomy 21 due to increased maternal age (over 37).
Results: In two cases, fetal karyotype confirmed the presence of double aneuploidy. Both of them were in mosaic form (48,XXX,+21/46,XX and 48,XXY,+21/47,XY,+21).
Conclusion: Our data confirm the fact that double trisomy in second trimester of pregnancy, also in liveborns, usually involves the sex chromosomes in combination with potentially viable autosomal trisomies such as 21, 18 and 13. Double aneuploidy leading to trisomy of two different chromosomes arises because of the meiotic non-disjunctional events and/or postzygotic mitotic nondisjunction in mosaic cases. As the incidence of fetal trisomies is directly related to maternal age factors rather than genetic predisposition, such factors may play a more important role in the etiology of the most common double aneuploidy 48,XXY,+21. Our cases emphasize the importance of genetic counseling to assess the recurrent risk of double trisomy.

***Keywords**: double trisomy, second trimester, amniocentesis*

***Ključne riječi**: dvostruka trisomija, drugo tromjesečje, amniocenteza*

PERIOPERACIJSKO LIJEČENJE ISHEMIJSKE BOLI KOD OVISNIKA-MULITIMODALNI PRISTUP

PERIOPERATIVE ISCHEMIC PAIN MANAGEMENT IN DRUG ADDICTS-MULITIMODAL APPROACH

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Introduction: Due to the abuse of illegal drugs, the number of drug addicts, who need adjusted perioperative care, is increasing. Inaddition, many of addicted patients also use methadon or buprenorphine in their maintence therapy, which makes the pain treatment in the perioperative period more challenging. As opioids are the basis of perioperative analgesic treatment, other ways of pain treatment with nonopioid analgesics and the use of regional anesthesia, should be considered as a good alternative therapy in addicted individuals. It is important to accentuate that the perioperative period is not a good moment to start withdrawing maintence therapy.
Case description: A 33-year-old Caucasian man was admitted to our hospital with intense pain in the left leg, bluntness and coldness of the left feet after injecting four dissolved zolpidem pills into the femoral artery. Due to the high values of myoglobin (39159 µg/L), fasciotomy was performed in general inhalational anesthesia with the addition of fentanyl opioid. Meperidine with diazepam, as well as low molecular weight heparin have been included in the postoperative treatment. A psychiatrist suggested to continue the methadone at 60 mg daily. Due to the progression of ischemic changes and increasingly severe pain, fasciotomy has been extended and systemic high dose opioid therapy has been continued. Despite increasing doses of opioids, his pain became worse with altered mental status, suggesting opioid-induced hyperalgesia (OIH). Epidural analgesia with levobupivacain 0.25% with 1.2 µg fentanyl / ml through epidural cateter was established, achieving satisfactory pain management. Drug administration through the epidural catheter continued also during the surgical amputation of the lower left extremity, as well as in the postoperative pain treament.
Conclusion: Satisfactory perioperative analgesia in patients with methadone maintance therapy may be achieved by epidural application of local anesthetics and adjuvant opioid-sparing techniques.

***Key words**: Pain management, hyperalgesia, analgesia, epidural, ischemia*

***Ključne riječi**: Liječenje boli, hiperalgezija, epiduralna analgezija, ishemija*

CO-INFECTION OF POLYOMAVIRUSES WITH CYTOMEGALOVIRUS AND EPSTEIN-BARR VIRUS IN ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANT RECIPIENTS – THE FIRST SURVEILLANCE STUDY FROM CROATIA

KOINFEKCIJA POLIOMAVIRUSA S CITOMEGALOVIRUSOM I VIRUSOM EPSTEIN-BARR U ALOGENIH PRIMATELJA TRANSPLANTACIJE KRVOTVORNIH MATIČNIH STANICA – PRVA STUDIJA IZ HRVATSKE

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Introduction: BK and JC polyomaviruses are causative pathogens of haemorrhagic cystitis in patients after allo HSCT. Viral co-infections have been noted to decrease the patient's response to antiviral treatment, result in more severe infection and increase the risk of mortality in allo-HSCT recipients.
Aim: This is the first study from Croatia investigating the simultaneous presence of BK and JC polyomaviruses with CMV and EBV in these patients.
Materials and methods: During the year 2015 at the Department of Clinical and Molecular Microbiology, University Hospital Centre Zagreb, urine and blood samples of patients after allo-HSCT suspected of having HC were examined for the presence of BKV/JCV by real-time PCR assay (LightMix Kit, TIB MOLBIOL, Berlin, Germany). Monitoring for CMV and EBV was done (LightMix Kit, TIB MOLBIOL and COBAS AmpliPrep/COBAS Taqman CMV, Roche) from plasma and whole blood samples.
Results: Total of 16 patients were enrolled. The predominant underlying diseases were acute myelogenous (7⁄16, 43.8%) and acute lymphatic leukemia (4⁄16, 25%). Nine (56.3%) patients received grafts from matched unrelated donor and 7 (43.8%) from matched related donors. BKV was positive in 6 out of 16 patients (37.5%). JC virus was detected in 2 out of 16 (6.25%) patients. 7 out of 8 (87.5%) BK/JC positive patients were also CMV DNA positive. 1 out of 8 (12.5%) BKV/JC positive patients has EBV DNA load higher than 1000 cp/mL but only in one sample. Graft versus host disease (GvHD) was diagnosed in 5 out of 8 (62.5%) BKV/JC positive patients. 4 out of 5 (80%) of them had polyomavirus/CMV co-infection.
Conclusion: Study showed that CMV/polyomavirus co-infection was the major type of viral co-infection founded. Our results emphasize the importance of current practice on monitoring of viral infection especially among those who have GvHD following allo HSCT.

Key words: *co-infection, transplantation*

Ključne riječi: *koinfekcija, transplatacija*

PLUĆNA EMBOLIJA U OBJEDINJENOM HITNOM PRIJAMU

PULMONARY EMBOLISM IN EMERGENCY DEPARTMENT

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Uvod: Plućna embolija nastaje radi ugruška koji blokira jednu od plućnih arterija. Budući da ugrušci blokiraju protok krvi u pluća, plućna embolija može biti opasna po život i hitna situacija. Sastoji se od kliničkih parametara, slike (UZV ili CT angiografija) te laboratorijskih testova i biomarkera. Indeks težine plućne embolije (PESI score) najopsežnije je potvrđen rezultat. Glavna snaga PESI izračuna leži u pouzdanoj identifikaciji pacijenata s malim rizikom od 30-dnevne smrtnosti (PESI klasa I i II). Niski PESI kriterij je uključivanja za kućno liječenje akutne PE.
Opis bolesnika: 27-godišnja pacijentica prezentira se na hitnom prijamu sa simptomima boli u prsima i dispeptičnim tegobama. Tegobe traju nekoliko dana uz normalan klinički status. Iz anamneze znamo da je na oralnim kontraceptivima te da puši, ali i da je do sada bila zdrava.
Materijali i metode: D dimeri u laboratorijskim nalazima bili su povišeni. Na scintigrafiji je uočena tromboza lijevog pluća. Izračunat je PESI rezultat prema kojem je bila klasa I - vrlo nizak rizik. Puštena je na kućno liječenje varfarinom.
Zaključak: S akutnom plućnom embolijom ključno je pitanje odabrati one pacijente koji su u niskom riziku smrtnosti od otpusta. PESI je najopsežnije potvrđena procjena. Jedno randomizirano ispitivanje koristilo je niski (klasa I ili II) PESI kao jedan od kriterija uključivanja za kućno liječenje akutne plućne embolije.
Utvrđeno je da je PESI rezultat u značajnoj korelaciji sa 30-dnevnom stopom smrtnosti. Prethodne studije pokazuju da se PESI može koristiti za predviđanje prognoze bolesnika s plućnom embolijom i za donošenje medicinskih odluka na hitnom odjelu u vezi s liječenjem bolesnika s plućnom embolijom.

Ključne riječi: *Plućna embolija, PESI rezultat, smrtnost niskog rizika, hitni prijam*

Key words: *pulmonary embolism, PESI result, low risk mortality, emergency admission*

USPOREDBA SPLENEKTOMIJE I RITUKSIMABA U DRUGOJ LINIJI LIJEČENJA REFRAKTORNE IMUNOTROMBOCITOPENIJE

SPLENECTOMY IN COMPARISON WITH RITUXIMAB AS A SECOND LINE TREATMENT FOR REFRACTORY IMMUNE THROMBOCYTOPENIA (ITP)

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Background: Splenectomy has been used for the treatment of immune thrombocytopenia (ITP) for more than a hundred years. The position of splenectomy in treating ITP has been questioned in the era of the new second line therapies, namely rituximab, anti-CD20 monoclonal antibody, and recently introduced thrombopoetin-receptor agonists.
Aim: single-centre retrospective study was to re-evaluate the role of splenectomy as the second-line therapy for ITP.
Methods: We have retrospectively analysed efficacy and safety of splenectomy and rituximab used as the second line treatment of patients with refractory or corticosteroid dependent ITP from our centre treated between 2000 and 2018.
Results: During the evaluation period, 48 patients with refractory or corticosteroid dependent ITP received rituximab or had splenectomy as a second-line treatment. Twenty-four patients (50%) had splenectomy (19 female (79%), median age 38 years (6-71)and 24 patients(50%) were treated with rituximab (12 female (50%), median age 30 years (7-68)).Median time from diagnosis of ITP and splenectomy was 2 years (1-12) and 1,5 year (0,25-24) for rituximab. Follow-up period for splenectomy was 0,5-16 years (median 4) and 0,3-10 years (median 2) for rituximab. Following splenectomy, eighteen patients (75%) achieved remission, while 12 patients (50%) achieved remission after rituximab. Relapse was observed in one patient 15 years after splenectomy, and in three patients following rituximab treatment, 12, 17 and 36 months later. Regarding side effects, one patient developed deep venous thrombosis related to splenectomy, whereas two patients had severe CMV infections after rituximab treatment.
Conclusion: The obtained results show that splenectomy is efficient as a second line treatment of refractory or corticosteroid-dependent ITP with acceptable side effects. However, as splenectomy is an invasive procedure, further analysis is needed to identify subset of patients that would have the most benefit from it.

***Key words**: splenectomy, refractory ITP, rituximab*

***Ključne riječi:** splenektomija, refraktorna ITP, rituximab*

ISHODI BUBREŽNOG PRESAĐIVANJA U KLINIČKOM BOLNIČKOM CENTRU OSIJEK

OUTCOMES OF KIDNEY TRANSPLANTATION IN CLINICAL HOSPITAL CENTER OSIJEK

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Uvod: Prošlo je prvih 10 godina bubrežnog presađivanja (TX) u KBC Osijek. Razne vrste ishoda koji se uobičajeno primjenjuju u TX-u, mogu prikazati raznolike rezultate.
Cilj istraživanja: Cilj je rada bio istražiti jednogodišnje, petogodišnje i ukupno preživljenje presatka do trenutka istraživanja, cenzorirano i necenzorirano za smrt primatelja s funkcionirajućim presatkom. Također, cilj je bio istražiti jednogodišnje, petogodišnje i ukupno preživljenje primatelja presatka do trenutka istraživanja te istražiti aktualnu funkciju presatka na temelju kreatininemije i glomerulske filtracije (GF).
Materijali i metode: U istraživanje je bilo uključeno svih 123 ispitanika kojima je učinjeno bubrežno presađivanje (TX, engl. *transplantation*) tijekom prvih 10 godina bubrežnog TX-a u Kliničkom bolničkom centru Osijek (KBCO). Iz medicinskih zapisa prikupljeni su demografski i medicinski podatci, vremenski podatci o dijalizi i TX-u, i kreatininemiji. Podatci su obrađeni statistički pomoću SPSS-a (inačica 16.0).
Rezultati: Jednogodišnje preživljenje presatka necenzorirano za smrt s funkcionirajućim presatkom bilo je 87,8 %, petogodišnje 82,9 %, a ukupno do trenutka istraživanja 78 %. Jednogodišnje preživljenje presatka cenzorirano za smrt s funkcionirajućim presatkom bilo je 93,5 %, petogodišnje 89,3 %, a ukupno do trenutka istraživanja 86,2 %. Jednogodišnje preživljenje primatelja bilo je 93,5 %, petogodišnje 91,1 %, a ukupno do trenutka istraživanja 90,2 %. Prosječni GF, kao mjera funkcije presatka, bio je 49,1 (20,1) ml/min, u skladu s podatcima objavljenima za stanovništvo drugih područja u svijetu.
Zaključak: Preživljenja u bubrežnom TX-u u KBCO-u bila su slična europskim i drugim objavljenima, jednogodišnja nešto kraća, a petogodišnja nešto dulja. Preživljenje cenzorirano za smrt primatelja s funkcionirajućim presatkom prikazuje ishod boljim nego necenzorirano. O izboru ishoda ovisi procjena uspješnosti bubrežnog presađivanja.

Ključne riječi: *bubrežno presađivanje, preživljenje primatelja bubrežnog presatka, preživljenje bubrežnog presatka, cenzorirano preživljenje, ishod*

Key words: *kidney transplantation, kidney recipient survival, kidney graft survival, censored survival, outcome.*

HEMATOLOŠKE POJAVE KOD ALKOHOLIZMA

HEMATOLOGICAL ABNORMALITIES IN ALCOHOLISM

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Uvod: Prekomjerna konzumacija alkohola utječe na stvaranje i funkciju krvnih stanica (hematopoezu) direktno i indirektno. Direktno toksično djelovanje alkohola podrazumijeva štetan utjecaj na koštanu srž i matične stanice u njoj, te utjecaj na zrele krvne stanice, dok indirektan utjecaj konzumacije alkohola nastaje kao posljedica deficita nutrijenata bitnih za razvoj i funkciju krvnih stanica.
Cilj: Cilj ovog rada je utvrditi vrijednosti broja eritrocita, koncentraciju hemoglobina, hematokrita, eritrocitnih konstanti, leukocita, diferencijalne krvne slike, trombocita kod hospitaliziranih alkoholičara bez znakova oštećenja jetre i usporediti dobivene rezultate sa rezultatima zdrave kontrolne skupine.
Materijale i metode: U periodu od studenog 2012 do lipnja 2013 u Biokemijsko-hematološkom laboratoriju Klinike za psihijatriju Vrapče u Zagrebu analizirani su rezultati uzoraka krvi uzetih od 30 hospitaliziranih alkoholičara oba spola sa odjela kroničnog alkoholizma na Zavodu za liječenje ovisnosti. U istom periodu analizirano je 30 uzoraka krvi dobivenih od zdravih zaposlenika. Određivani su broj eritrocita, vrijednosti eritrocitnih konstanti, broj leukocita, trombocita, diferencijalna krvna slika, vrijednosti aspartataminotransferaze (AST), alaninaminotransferaze (ALT)
i bilirubina
Rezultati: Studija je koncipirana kao retrospektivna, deskriptivna. U radu se vrši usporedba dobivenih rezultata pomoću grafova. Prosječna vrijednost eritrocita, hemoglobina, hematokrita kod ispitanih alkoholičara je znatno niža od prosječne vrijednosti u odnosu na kontrolnu skupinu. Prosječni volumen eritrocita (MCV) i prosječna količina hemoglobina (MCH) u eritrocitima je kod skupine ispitanika povećan u odnosu na kontrolnu grupu. Prosječan broj leukocita i trombocita je manji kod ispitanika alkoholičara nego kod kontrolne grupe.
Zaključak: Rad ukazuje da se kod kroničnih alkoholičara bez prisustva oštećenja jetre nalaze promjene hematopoeze.

Ključne riječi: *alkoholizam, krvne stanice, hematopoeza, hematologija*

Keywords: *alcoholism, blood cells, hematopoiesis, hematology*

POJAVNOST KRIŽOBOLJE U OPĆOJ POPULACIJI STAROSTI OD 20 DO 30 GODINA NA PODRUČJU VIROVITIČKO-PODRAVSKE ŽUPANIJE (VPŽ)

PREVALENCE OF THE LOW BACK PAIN IN GENERAL POPULATION OF TWENTY DO THIRTY YEARS OF AGE IN THE AREA OF VIROVITICA- PODRAVINA COUNTY (VPC)

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Uvod: Pojavnost križobolje u mladoj populaciji na svjetskoj razini iznosi 10-25%. U velikom broju slučajeva pripadnici mlade populacije nisu osjetno zahvaćeni degenerativnim promjenama, često imaju bolove u donjem dijelu leđa. Zbog toga, najčešći je oblik križobolje u mladoj životnoj dobi nespecifična križobolja.
Cilj: Istraživanjem će se ispitati prevalencija i intenzitet simptma križobolje kod mladih osoba na području VPŽ-a te utvrditi razlike u intenzitetu simptoma kod žena i muškaraca, razlike u odnosu na razinu obrazovanja radi utvrđivanja pojave križobolje vezano uz stres na radnom mjestu i ranim godinama profesionalnog života.
Materijali i metode: Istraživanje je provedeno anonimnom anketom putem upitnika gdje su u prvom dijelu upitnika postavljena opća pitanja : dob, spol, stručna sprema te područje na kojem živi. Drugi dio pitanja vezana su uz Oswestry upitnik koji se koristi za procjenu invalidnosti uzrokovanom boli u lumbalnom dijelu kralježnice.
Rezultati: Ispitanici bilježe Oswestry indeks onesposobljenosti na razini 30%. Žene u gotovo svim svakodnevnim aktivnostima, prijavljuju veće tegobe, najizrazitije u percepciji intenziteta boli. Nije pronađena korelacije između razine obrazovanja i intenziteta križobolje.
Zaključak: Mladi na području VPŽ prema Oswestry indeksu imaju izraženije simptome križobolje od svjetskog prosjeka mlade populacije. Žene u odnosu na muškarce prijavljuju veće simptome pri izvođenju gotovo svih aktivnosti svakodnevnog života. Razina obrazovanja ne utječe na pojavnost križobolje. Dugo sjedenje i stajanje provociraju najviše simptoma. Između muškaraca i žena najveće su razlike i intenzitetu simproma kod percepcije intenziteta boli.

Keywords: *low back pain, Oswesty disability index, prevalence, VPŽ*

Ključne riječi*: križobolja, pojavnost, Oswestry indeks onesposobljenosti, VPŽ*

(Podatci su korišteni uz suglasnost Marina Buljan , mag physioth)

VRIJEME KOJE PROĐE OD PRIJEMA DO DAVANJA ANTIBIOTIKA - MOŽEMO LI BITI BOLJI?

TIME FROM ADMISSION TO ADMINISTRATION OF ANTIBIOTICS- CAN WE DO BETTER?

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Introduction: Today's evidence suggests that timely administration of antibiotic therapy from the time of patient arrival to the emergency department significantly improves mortality rates.
Aim: In our research we studied patients with various inflammatory conditions that required hospitalization and administration of intravenous antibiotics at the Emergency department of Zagreb University Hospital. With this research we tried to determine the average time from when the decision of admittance was made to the time when the antibiotic was administered.
Materials and methods: We studied a randomized set of 68 patients that met the conditions of the study.
Results: We determined that it took 3 hours and 15 minutes from the point that the decision of admittance was made to the point that the patient received the antibiotics. It took 20 minutes from the time the patient left the Emergency department to the time they were admitted to the Internal Medicine Department. After that it took 25 minutes on average for the patient to get the appropriate antibiotic therapy. From that point it took 1 hour and 50 minutes on average for the antibiotics to be administered. The length of time also varied depending on the time of day. From 8:00 to 16:00 it took 4 hours and 25 minutes from decision of the admittance to the administration of the antibiotics, from 16:00 to 00:00 it took 3 hours and 10 minutes, and from 00:00 to 8:00 it took 3 hours and 15 minutes.
Conclusion: We concluded that each step of the process can be upgraded with a strong emphasis on urgent application of antibiotics, the best right at the Emergency department. By studying how much time it takes the patient to receive an antibiotic we determined the points in the system that are now flawed and can be more efficient in the future.

Keywords: *antibiotics, timing, admission to hospital, antibiotics administration*

Ključne riječi: *antibiotici, vrijeme, prijem u bolnicu, primjena antibiotika*

PLUĆNA KONTUZIJA NAKON TUPE TRAUME PRSIŠTA: KLINIČKI ZNAČAJ I EVALUACIJA ZBRINJAVANJA PACIJENATA

PULMONARY CONTUSIONS AFTER BLUNT CHEST TRAUMA: CLINICAL SIGNIFICANCE AND EVALUATION OF PATIENT MANAGEMENT

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Introduction: A pulmonary contusion (PC) is an entity defined as alveolar haemorrhage and pulmonary parenchymal destruction after blunt chest trauma. According to the literature, most pulmonary contusions can only be seen on a chest CT.
Aim: The aim of this study was to evaluate the patients with PC and their management, considering diagnostic and therapeutic options related to their outcomes, since we assumed that an 'overdiagnosing' and 'overtreatment' attitude towards this injury could be present.
Patients and methods: The research was a retrospective study including 5042 patients admitted to the Department of Traumatology in the Clinical Hospital Centre Osijek, during a 3-year period. The medical data of the patients who suffered PC were evaluated considering significant characteristics, known risk factors, procedures undergone and outcomes.
Results: 2% of all the admitted patients were diagnosed with a PC. In 54% of the cases, the patient suffered polytraumatic injuries. PC was an isolated injury in 7% of the patients. In 31% of the cases, there was no liquidothorax or pneumothorax (isolated PC). In 89% of the patients, the PC was diagnosed using a CT scan. In 68% of the patients there were no interventions regarding the thorax; thoracocentesis was performed in 25% and pleural punction in 14%. Respiratory insufficiency developed 25% of the patients and 16% required mechanical ventilation. Regarding isolated PC, respiratory insufficiency was present in 8% of the cases.
Conclusions: We suggest that a PC seen on CT only has limited clinical significance and that the use of CT scans in diagnosing and follow-up of these patients should be re-evaluated. Further prospective and randomised studies should be conducted and the patients should be clinically evaluated, with the administration of supportive and antibiotic therapy, maintaining the fluid balance, the administration of diuretics, supportive oxygen therapy, pulmonary toilet, and physical therapy.

Key words: *thoracic injuries, lung injuries, pulmonary contusion, thoracic radiography, lung CT scan*

Ključne riječi: *ozljede prsišta, ozljede pluća, plućna kontuzija, torakalna radiogragija, CT pluća*

POVEZANOST ZDRAVSTVENE PISMENOSTI SA ZNANJEM I STAVOVIMA O PRIMARNOJ KEMOPREVENCIJI RAKA DOJKE U POPULACIJI ŽENA BEZ RAKA DOJKE

ASSOCIATION OF HEALTH LITERACY WITH KNOWLEDGE AND ATTITUDES ABOUT BREAST CANCER CHEMOPREVENTION AMONG WOMEN WITHOUT BREAST CANCER

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Introduction: Breast cancer is a malignant epithelial tumor of the breast that most commonly results from the proliferation of epithelium of the terminal ducts or ductulo-lobular units. Various risk factors involved in the process of developing breast cancer have been identified. Medications most commonly used for breast cancer prevention include selective estrogen receptor modulators and aromatase inhibitors.
Aim: The aim of the study was to examine the level of health literacy in the population of women in which the existence of breast cancer is ultrasound or mammography excluded at the radiology department of the Osijek Health Center and to examine attitudes about chemoprevention of breast cancer in the same population of women and their interrelationship.
Materials and methods: The subjects included in the study were women aged 22-87 who were examined for breast cancer at the mammography and breast ultrasound department at the radiology department of the Osijek Health Center. Exclusion criteria were: personal history positive for breast cancer, lobular carcinoma in situ or ductal carcinoma in situ, and a positive result of genetic testing of BRCA 1 and BRCA 2 genes, respectively. Data was collected through a series of questionnaires.
Results: Most examinees believe (according to self-assessment) that their level of health literacy is sufficient to be able to easily access, understand, assess and apply information on health, disease prevention and health promotion, which we conclude from the median of the health literacy scale which is 3, therefore we can rate it as “adequate”.
Conclusion: Most respondents believe that they can easily access and understand health and disease information from a variety of sources. Most respondents (79%) have a positive attitude about chemoprevention of breast cancer. The biggest obstacle, for most women, to taking chemoprevention medication would be the fear of possible side effects.

Key words: *chemoprevention, breast cancer, health literacy*

Ključne riječi: *kemoprevencija, rak dojke, zdravstvena pismenost*

ISHODI OPERACIJSKOG LIJEČENJA TRAUMATSKIH OZLJEDA TORAKOLUMBALNOG SEGMENTA KRALJEŽNICE

SURGICAL TREATMENT OUTCOMES OF TRAUMATIC THORACOLUMBAR SPINE INJURIES

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Introduction: Vertebral column and spinal cord trauma is a complex injury commonly resulting in neurological consequences. The thoracolumbar segment of the spine (area between the 11th thoracic and the 2nd lumbar vertebra) is, due to its greater mobility, the most common location of traumatic spinal fractures.
Objectives: The aim of this study was to determine demographic characteristics of patients who have undergone surgical treatment of thoracolumbar spinal trauma and examine the mechanisams that have caused it. The study also examines the relationship between neurologic deficit and factors such as age, gender, mechanism and level of injury, the degree of spinal canal narrowing and associated injuries.
Methods and participants: This is five-year retrospective study. The subjects were patients operated on in the Department of Neurosurgery , University Hospital Center Osijek from January 1st 2011 till December 31st 2015 for clinically and diagnostically confirmed thoracolumbar spinal trauma.
Results: During the five-year period, 49 patients were operated on due to thoracolumbar spinal trauma, 37 (76 %) of whom were men and 12 (24 %) were women, with a median age of 46 years. Fall from a height up to 3 meters was the cause of injury in 25 (51 %) respondents, whereas a traffic accident caused it in 14 (29 %) of them. At admittance, 15 (31 %) of respondents showed some neurological deficit. Mild preoperative neurological deficit was observed in one respondent (2 %) , moderate in 7 (16 %), while the same number suffered severe preoperative neurological deficits.
Conclusion: In our study sample, most respondents had neural compression, two-thirds had bone fragments in the spinal canal, while spinal canal narrowing was present in 90 % of subjects. Despite spine trauma, no neurological deficit was observed in 69 % of respondents. After surgery, neurological deficit generally remained unchanged or subjectively improved.

Key words: *thoracolumbar segment; neurological deficit, spinal cord injury, spinal fracture, spinal trauma*

Ključne riječi: *torakolumbalni segment; neurološki deficit; ozljeda kralježnične moždine; prijelom kralježnice; trauma*

PRIKAZ SLUČAJNOG OTROVANJA KLOROVODIČNOM KISELINOM

ACCIDENTAL HYDROCHLORIC ACID POISONING – CASE REPORT

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Uvod: Otrovanje je kliničko stanje koje karakterizira iznenadna ili postupna ugroženost jednoga ili više organskih sustava. Ingestija kiseline uzrokuje krvarenje i lezije sluznice te neposredne ili brze perforacije šupljih organa s letalnim ishodom. Kod preživjelih pacijenata liječenje je dugotrajno, bolno te nastaju strikture zahvaćenih organa.
Opis bolesnika: Muškarac u dobi od 84 godine, dolazi u pratnji hitne medicinske pomoći u hitnu internističku ambulantu nakon ingestije klorovodične kiseline. Navodi da je popio oko 1 decilitar kiseline po preporuci susjeda zbog probavnih tegoba koje traju mjesec dana. Do sada se liječio zbog arterijske hipertenzije i benigne hipertrofije prostate. Negira suicidalne misli. Po ingestiji navodi promuklost, pojačanu salivaciju te pečenje u grlu. Pri pregledu relativno dobrog općeg stanja, urednog krvnog tlaka i pulsa. U usnoj šupljini prikazuje se blijeda sluznica vidljivo oštećena ali bez ulceracija i krvarenja. Tijekom obrade uvedu se dva venska puta, plasira se urinarni kateter, uzmu uzorci krvi te se bolesnik zaprima u JIL radi monitoringa vitalnih funkcija, rehidracije, intravenske primjene inhibitora protonske pumpe i analgetika. Ubrzo po smještaju u JIL dolazi do pogoršanja općeg stanja bolesnika, tahikardije ta pada krvnog tlaka. U laboratorijskim nalazima vidljive su visoke vrijednosti LDH uslijed intravaskularne hemolize, posljedična normocitna anemija te leukocitoza uslijed šoka. Unatoč mjerama intenzivnog liječenja, šest sati od prijema, dolazi do zatajenja vitalnih funkcija i egzitusa. Obdukcijom se nađe nekroza i perforacija jednjaka, želuca, tankog crijeva te ošita što je rezultiralo razvojem medijastinitisa i peritonitisa.
Zaključak: Najčešća otrovanja su slučajna te je riječ o tvarima koje ne susrećemo u svakidašnjoj praksi. Kod ingestije kiseline liječenje se provodi razrjeđivanjem kiseline vodom ili alkalijama. Kontraindicirana je lavaža ili indukcija povraćanja. Nakon hitnih postupaka provodi se analgetska terapija, liječenje šoka, infekcije te kirurško liječenje perforacije organa.

Ključne riječi: *otrovanje, klorovodična kiselina, ingestija, perforacija.*

Key words: *poisoning, hydrochloric acid, ingestion, perforation.*

UČESTALOST HEMOLITIČKE BOLESTI FETUSA I NOVOROĐENČADI U KBC-U ZAGREB U RAZDOBLJU OD 2007. DO 2010.

INCIDENCE OF HEMOLYTIC DISEASE IN THE FETUSES AND NEWBORNS IN THE PERIOD OF 2007. TO 2010.

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Uvod: Najčešća klinički značajna imuna aloprotutijela su anti-RhD protutijela. Posljedica su RhD pozitivnih transfuzija i trudnoća u RhD negativnih osoba. Mogu uzrokovati ekstravaskularne hemolitičke transfuzijske reakcije (HTR) i teške oblike hemolitičke bolesti fetusa i novorođenčeta (engl. HDFN). HDFN je karakterizirana žuticom i anemijom, a najteži oblici su hidrops fetusa, edem tkiva, pleuralni izljev i ascites. Najteže oblike bolesti uzrokuju protutijela iz Rh i Kell sustava krvnih grupa.
Cilj: Utvrditi učestalost aloimunizacija u trudnica, udio pozitivnog direktnog coombsovog testa (DAT-a) u novorođenčadi, odrediti specifičnost antieritrocitnih protutijela, te učestalost eksangvinotransfuzija i transfuzijsko liječenje.
Materijali i metode: Aglutinacija u mikrostupcu (BioVue; Ortho) eritrocita ispitanika s reagensima, odnosno plazme ispitanika s test eritrocitima. Za otkrivanje eritrocitnih protutijela korišten je dvostanični panel test eritrocita koji posjeduju većinu klinički značajnih antigena. Test otkrivanja antieritrocitnih protutijela pozitivan je ako dođe do aglutinacije s jednim ili oba test eritrocita.
Rezultati: U razdoblju od 2007. do 2010. učinjeno je imunohematološko ispitivanje 68 trudnica, 5563 testiranja DAT-a u novorođenčadi od kojih su 382 (6.86%) bila pozitivna. Od 382 pozitivna u 311 (81%) se radilo o ABO protutijelima, a u 69 (19%) o protutijelima iz ostalih sustava krvnih grupa. U serumu trudnica ukupno su dokazana 94 protutijela. Ukupno je 19 (28%) novorođenčadi liječeno eritrocitnim pripravcima. U 15 (79%) slučajeva bilo je potrebno učiniti eksangvinotransfuziju, a u 4 (4%) je primjenjena samo transfuzija koncentrata eritrocita.
Zaključak: Razvoj metoda određivanja eritrocitnih antigena i mogućnosti genotipizacije te unaprjeđenje testova otkrivanja i identifikacije antieritrocitnih protutijela značajno su podigli razinu sigurnosti transfuzijskog liječenja fetusa i novorođenčeta kao i kvalitetu nadzora trudnoća rizičnih za razvoj HDFN. Napredak moderne medicine omogućio je znatno bolju dijagnostiku i liječenje HDFN, a jedan od najboljih primjera preventivne medicine je provođenje RhD profilakse.

***Ključne riječi**: HDFN, anti-RhD protutijela, antieritrocitna protutijela, RhD profilaksa*

***Key words**: HDFN, anti-RhD antibodies, antierythrocyte antibodies, RhD prophylaxis*

LANAC PREŽIVLJENJA

THE CHAIN OF SURVIVAL

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Introduction: Cardiac arrest is one of the most common emergencies that medical professionals encounter in practice. Cardiopulmonary resuscitation is a lifesaving technique performed when the heart stops beating.
Aim: The aim of this study was to investigate what are the factors that reduce positive outcome of out-of-hospital cardiopulmonary resuscitation (CPR) and how it could be improved.
Methods: The study was based on data from the eHitna system and forms of the out-of-hospital cardiac arrest reports according to the Utstein guidelines, at the Institute of Emergency Medicine in Koprivnica-Križevci County, and included 204 patients over a one-year period.
Results: In 58 out of 204 patients (28.4%), emergency medical (EM) dispatchers recognized arrest from phone calls and in 48 patients basic life support was started by laypeople. 4 out of 48 resuscitations initiated by laypeople had positive outcome. In 78 out of 204 patients, CPR was initiated by EM team and in 13 patients, after the return of spontaneous circulation (ROSC), it was maintained until hospital admission.
Conclusion: The main focus should be on better communication between EM dispatchers and callers, and should encourage the witnesses of the arrest to proceed with basic life support as soon as possible, until arrival of the EM team. The focus should also be on education of medical workers and laypeople as often as possible and on installation of more automated external defibrillators in public places.

***Key words**: cardiac arrest, cardiopulmonary resuscitation, basic life support*

***Ključne riječi**: srčani zastoj, kardiopulmonalna reanimacija, osnovno održavanje života*

MISDIAGNOSIS OF EPILEPSY IS OFTEN-HOW OFTEN IN CHILDREN ?

POGREŠNA DIJAGNOZA EPILEPSIJE JE ČESTA-KOLIKO ČESTA U DJECE ?

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Introduction: Diagnosis of epilepsy in some cases can be challenging due to different seizure types as well as imitators of epilepsy. Misdiagnosis can lead to unnecessary long-term antiepileptic drug (AED) treatment.
Aim: of the study were: (1) to determine the rate of false-positive diagnosis of epilepsy in children with previously established diagnosis; (2) to analyze the clinical and electroencephalographic (EEG) features in children with a misdiagnosed epilepsy; and (3) to determine the most common cause of misdiagnosis of epilepsy
Materials and Methods: Our research involved a 10-year period and total of 1011 children with a diagnosis of epilepsy. Patient history and diagnostic work-up (wakefulness and sleep video- EEG monitoring, neuroimaging, video documentation of seizures if available as well as other diagnostic tests) were reviewed in detail by two experienced child neurologists. In case of misdiagnosis of epilepsy, AEDs were discontinued. All patients were followed several years by regular clinical check-ups and/or telephone interviews.
Results: We identified misdiagnosis of epilepsy in 101 children (9.99%). Leading causes of false-positive diagnosis of epilepsy were syncopes (27%) and psychogenic attacks (13%) and others, there were as follows by frequency: tics/stereotypies, benign myoclonus, breath-holding spells, convulsive seizures but not epilepsy and others. Overinterpretation of EEG findings was present as the cause of misdiagnosed epilepsy in 37% of patients.
Conclusion: Our study supports the view that misdiagnosis of epilepsy is not rare. There is a need for a better clinical understanding of different paroxysmal events, imitators of epilepsy, and avoiding a tendency to overread normal EEGs as abnormal.

Key words *: epilepsy, children, misdiagnosis*

Ključne riječi *: epilepsija, djeca, pogrešna dijagnoza*

KLINIČKO-TOKSIKOLOŠKA MREŽA KOD SUMNJE NA INTOKSIKACIJU NOVIM PSIHOAKTIVNIM TVARIMA U SKLOPU PROJEKTA I-SEE

CLINICAL-TOXICOLOGY NETWORK IN SUSPECTED NEW PSYCHOACTIVE SUBSTANCE (NPS) INTOXICATIONS AS A PART OF I-SEE PROJECT

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Introduction: The spread of New Psychoactive Substances (NPS) in Europe is increasing as the care for consumer's health. In Croatia, results of recent research have shown increased NPS consumption, while the doctors from the Emergency Departments are often treating patients with atypical clinical pictures of unknown intoxications. Therefore, there is a need for new joint form of intervention, better monitoring, exchanging information on NPS intoxications, as well as detection of NPS in biological samples. One of those tools is the European project I-SEE for strengthening information exchange between Italy and South East Europe neighboring countries on New Psychoactive Substances. It involves 5 partners: University of Florence(Italy); University of Split School of Medicine (Croatia); National Institute of Public Health, Ministry of Interior Police and the Association DrogArt (Slovenia). The duration of project is 2 years.
Aim: Establishing effective clinical-toxicology network in suspected NPS intoxications.
Material and methods: In Croatia, building up a clinical-toxicology network within Croatian Early Warning System was proposed, which would include all institutions that get in contact with NPS in any way. These are: health facilities, chemical-toxicology laboratories, NGO's, Poison Control Center, and law enforcement. All of the NPS information would be exchanged in accordance with the proposed algorithm.
Results: Establishing effective clinical-toxicology network, improving health professionals knowledge on NPS and medical care of intoxicated persons, establishing information exchange with national EWSs in neighbouring countries, creation of operation guidelines to define clear tasks and responsibilities for each center involved into the clinical network and creation of guidelines for NPS biological samples management and analysis
Conclusion: This network could accelerate information exchange based on clinical-toxicology evidence and assist health professionals in better managing NPS intoxications in Croatia.

Key words*: New Psychactive substances, Eearly Warning System, clinical-toxicology network*

Ključne riječi*: Nove psihoaktivne droge, sustav ranog uppozoravanja, kliničko-toksikološka mreža*

REPLANTACIJA I REVASKULARIZACIJA UMJESTO REAMPUTACIJE KOD TEŠKIH TRAUMA ŠAKE: SERIJA SLUČAJEVA

REPLANTATION AND REVASCULARIZATION VERSUS REAMPUTATION IN SEVERE HAND TRAUMA CASES: A CASE SERIES

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Uvod: Različiti autori su raspravljali o indikacijama i kontraindikacijama za replantaciju prstiju i šake nakon teških ozljeda. Objavljuju se brojni prikazi slučajeva i serija slučajeva koji promoviraju pokušaj replantacije u ozlijeđenih s relativnim kontraindikacijama s ciljem očuvanja funkcije šake i kvalitete života. Ovaj rad predstavlja tri slučaja u kojima su pacijenti uspješno operirani unatoč postojanju kontraindikacija (razina amputacije, mehanizam ozljede, prisutnost komorbiditeta ili drugih komplikacija).
Opis bolesnika: Slučaj 1: ozljeda palca u zoni II s ozeblinom na amputatu. Slučaj 2: ozljeda palca na više razina. Slučaj 3: složena ozljeda na dvije razine (avulzija šake i mišića podlaktice udružena s kontuzijom kubitalne arterije i tromboziranom radijalnom arterijom)
Materijali i metode: Ozlijeđeni pacijenti su incijalno obrađeni kroz hitni bolnički prijem. Sva tri pacijenta je operirao prvi autor (kao pripravni plastični kirurg).
Zaključak: Predstavljeni su uspješni ishodi u seriji replantacija i revaskularizacija palca i šake unatoč drugdje navedenim i diskutiranim kriterijima.

***Ključne riječi**: šaka, prst, ozlijeda, replantacija, revaskularizacija, amputacija, reamputacija, mikrokirurgija*

***Key words:** hand, finger, injury, replantation, revascularisation, amputation, reamputation, microsurgery*

SAFETY OF NONPROTECTED CAROTID ARTERY STENTING – A SINGLE-CENTER EXPERIENCE

SIGURNOST STENTIRANJA KAROTIDNE ARTERIJE BEZ PROTEKCIJE – ISKUSTVO JEDNOG CENTRA

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Introduction: With the careful patient selection and a multidisciplinary approach, carotid artery stenting (CAS) showed similar risks and benefits as carotid artery endarterectomy (CEA). Angioplasty of atherosclerotic plaque is the most important step during the CAS because it bears the risk of releasing plaque debris into the intracranial circulation. Distal embolic protection devices were developed to prevent stroke as one of the major complications during the procedure. Due to non-conclusive results of their efficiency in some of the major trials and other complications that can theoretically occur during the employment of such devices, there are large differences in the frequency of their use among operators.
Objectives: The objective of this study was to compare the incidence of clinically evident stroke in the early postprocedural period in patients who had CAS with distal embolic protection with patients who had the same procedure without distal embolic protection.
Methods: We retrospectively analyzed data of patients that were endovascularly treated for carotid artery stenosis in our department from 2006 to 2016 and searched for clinical evidence of stroke that could be attributed to the procedure.
Results: We found no significant difference in periprocedural stroke incidence in the two groups of our patients.
Conclusion: Although our study is a retrospective case-control study we displayed the safety of our current CAS protocol which does not include distal embolic protection for all patients.

Key words: *Carotid artery stenting(CAS), distal embolic protection, stroke*

Ključne riječi*: stentiranje karotidne arterije (CAS), distalna embolička zaštita, moždani udar*

PRIJAVLJIVANJE NUSPOJAVA KOD KRONIČNIH BOLESNIKA

REPORTING ADVERSE DRUG REACTIONS BY PATIENTS TREATED FOR CHRONIC DISEASES

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Introduction: Adverse drug reaction (ADR) reporting is important for detecting toxicity or inefficiency of some drugs. ADRs can be reported by a physician, a pharmacist or by a patient.
Aim: This study was conducted to assess attitudes of patients treated for chronic diseases regarding pharmacotherapy and their knowledge about adverse drug reaction (ADR) reporting and about Agency for Medicinal Products and Medical Devices of Croatia (HALMED).
Materials and methods: A questionnaire was given to 60 patients with at least one chronic condition and at least one medication for a chronic condition.
Results: Percentage of subjects who took their medicine regularly was 97 % and 85 % had a positive attitude towards pharmacotherapy. Less than half of participants have heard of HALMED. Only 22 % of all patients was aware they could report ADRs directly as patients to HALMED. Among 54 subjects that knew to whom they could report a suspected adverse reaction, all of them cited a primary care physician as a first option. Among 19 subjects that had already reported their adverse drug reactions, 79 % had reported to their primary care physician (and the rest to their specialist physician or pharmacist).
Conclusion: Patients are quite compliant and have positive attitude regarding pharmacotherapy, but they are not educated enough about reporting directly as patients and about HALMED. Most of the participants would in the case of suspected adverse drug reaction contact their primary care physician first.

Key words: *ADR, pharmacovigilance, HALMED*

Ključne riječi: *nuspojave, farmakovigilancija, HALMED*

OSOBITOSTI BOLESTI ŠTITNJAČE U DJEČJOJ DOBI

CHARACTERISTICS OF THYROID DISEASE IN PEDIATRIC POPULATION

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Introduction: In the last decade an increase of incidence of autoimmune thyroid disease in children has been observed.
Aim:. The aim of the study was to determine the incidence of thyroid disease in the pediatric population treated at the Pediatric Clinic of Osijek; to determine if there was a rise of thyroid disease incidence in pediatric population in 2010 and 2017; and to determine whether there was any association with certain factors such as anamnestic features, age, gender, comorbidity, and other relevant factors with an increased incidence of thyroid disease in childhood for a given period.
Materials and methods: Draft study: two-year retrospective study in two separately observed one-year periods (2010 and 2017). All pediatric patients of the Institute for Endocrinology of KBC Osijek with diagnosed thyroid disease were included in the study in the period from January 1st 2010 until December 31st 2010 and from January 1st 2017 until December 31st 2017, and medical data were used to obtain the data. Differences between variables were tested by $\chi 2$ test, Fisher's exact test, and Mann-Whitney's U test, and the level of statistical significance was accepted for $p < 0.05$.
Results: There was a 2.4-fold increase in thyroid disease approximated incidence, 9.7-fold higher approximated incidence of autoimmune thyroiditis, 9.75-fold higher approximated incidence of unspecified hypothyroidism, triple increase in approximated incidence of non-toxic goitre, and other unclassified thyroid diseases are also statistically significantly on the rise. Analysis of factors such as anamnestic features, age, gender, comorbidity, and other relevant data can not explain the increase of thyroid disease incidence.
Conclusion: The incidence of thyroid disease has increased considerably in the observed years, following world trends. Efforts should be taken to clarify the mechanisms and factors involved in causing thyroid diseases in the pediatric population.

Keywords*: thyroid disease; pediatrics; incidence; autoimmunity*

Ključne riječi: *bolest štitnjače, pedijatrija, incidencija, autoimunost*

POVEZNICA IZMEĐU FIZIČKE AKTIVNOSTI I KVALITETE ŽIVOTA U ŽENA STARIJE DOBI

ASSOCIATION BETWEEN PHYSICAL ACTIVITY AND QUALITY OF LIFE IN OLDER FEMALE ADULTS

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Objectives: Assessment of effect of exercises, performed by the elderly women, on quality of life, self-assessment of health and experience of pain.
Study Design: Prospective cross-sectional study. The data used in this study was collected at the Jadranka Plužarić Health Care Institute in Osijek by conducting research interviews with elderly women throughout March and April of 2019.
Participants and methods: The study was conducted on 93 subjects, tested before and after conducted specialized and customized programme of exercises at the Health Care Institute Jadranka Plužarić. The Health Questionnaire EQ-5D-5L and the McGill Pain-Short Form Questionnaire of Pain Intensity Scale were used in the study. The programme of exercises is based on exercises for improving balance and coordination, for strengthening and stretching muscles, performed during 8-week period and is tailored to meet the objectives of testing and needs of appropriate age group.
Results: The average results of the Health Questionnaire EQ-5D-5L after undergone therapy treatment are somewhat lower than in initial stage, which indicates improvement after treatment. The results of assessment of health are higher after therapy treatment rather than before the therapy treatment which also indicates better health condition. The results of the short form Melzack – McGill Pain Questionnaire indicate that the values are statistically significantly lower after received therapy treatment rather than before the therapy. By analysing certain types of pain, statistically lower results after the therapy are at eight out of fifteen types of pain at the significance level of 0.05 (5%).
Conclusion: The obtained results confirm the importance of regular exercise and physical activity as well as their effects on pain intensity and quality of life of elderly persons.

***Key words**: aging, exercise, quality of life.*

***Ključne riječi:** starenje, vježbanje, kvaliteta života*

EPILEPSIJA U DJECE S NEUROFIBROMATOZOM TIP 1

EPILEPSY IN CHILDREN WITH NEUROFIBROMATOSIS TYPE 1

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Uvod: Neurofibromatoza tip 1 (NF1) je najčešća autosomno dominantna neurokutana bolest koja se manifestira s brojnim neurološkim promjenama. Do sada objavljene prevalencije epilepsijskih napadaja u općim populacijama bolesnika s NF-om 1 kreću se od 6% do 15,8%, a one u dječjim NF1-populacijama od 3,5% do 6,7%.
Cilj: Utvrditi učestalost, kliničke značajke i tijek epilpsijskih napadaja u djece s NF-om 1.
Materijali i metode: Presječnom analizom baze podataka Hrvatske udruge za neurofibromatozu koja je obuhvaćala period od 1984-2018, analizirali smo učestalost, kliničke značajke i tijek epilepsijskih napadaja u skupini 431 djeteta s NF-om 1 (dobi 0-18 godina).
Rezultati: U djece s NF-om 1, 5,1% (22/431) imalo je najmanje jedan neprovocirajući ili provocirajući epilepsijski napadaj, a epilepsiju s ponavljajućim napadajima 4,2% bolesnika. Dvanesetero djece s epilepsijskim napadajima imala su pozitivnu, a jedan dječak nepoznatu obiteljsku anamnezu, dok su devetero su bili sporadični slučajevi. Fokalni motorni s poremećenom sviješću i s ili bez prelaska u bilateralno kloničko–toničke trzajeve bili su najčešći oblik napadaja (15/22 ili 68%). Od sedmero djece s generaliziranim napadajima (32%), dvoje je imalo epilepsijske /infantilne/ spazme-Westov sindrom, jedna djevojčica napadaje mioklonog absencea, a jedan dječak je pretrpio generalizirani motorni napadaj u febrilitetu. Interiktalne specifične epileptiformne promjene bile su prisutne u 19/20 bolesnika, a nespecifične u 1/20, dok je dječak s motoričkim napadajem u febrilitetu imao normalan EEG. Slikovnim pretragama (CT i/ili MR mozga) utvrđeni su T2-hiperintenziteti bijele tvari u 12/15, fokalne ili difuzne atrofičke promjene u 4/21, a dvoje bolesnika imalo je hipertenzivni hidrocefalus. Različiti stupanj mentalne retardacije pokazivalo je 10/22 bolesnika s NF-om 1 i epilepsijskim napadajima.
Zaključak: U usporedbi s općom populacijom, epilepsija u djece s NF-om 1 je češća. Napadaji su najčešće fokalni i nerijetko povezani s moždanim tumorima i drugim promjenama.

Ključne riječi: *neurofibromatoza, epilepsija, neurološka bolest, autosomno dominantna bolest*

Key words: *neurofibromatosis, epilepsy, neurological disease, autosomal dominant disease*

PROTUTUMORSKI UTJECAJ SISTEMSKE DNAZE I I PROTEAZA U IN VIVO MODELU

ANTITUMOR EFFECTS OF SYSTEMIC DNASE I AND PROTEASES IN AN *IN VIVO* MODEL

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Introduction: Cell-free DNA circulates in cancer patients and induces *in vivo* cell transformation and cancer progression in susceptible cells. Based on this, we hypothesized that depletion of circulating DNA with DNAse I and a protease mix could have antitumor effects.
Aim: The study aimed to demonstrate that DNAse I and a protease mix can degrade *in vitro* DNA and proteins from the serum of healthy individuals and cancer patients, and *in vivo* in serum of Wistar rats,. Moreover, the antitumor effect of the systemically administered enzyme mix treatmentwas evaluated in nude mice subcutaneously grafted with the human colon cancer cell line SW480.
Materials and methods: Male Wistar divided in 2 groups 4 animals each. Group 1 was inoculated with rat glioma cell line. Group 2 was control. Both groups were treated with enzyme mix of papain, trypsin, chymotrypsin and DNAse I.Same procedure was done with rat, healthy women and breast cancer patients serum.
Results: The serum DNA of cancer patients or healthy individuals was almost completely degraded *in vitro* by the enzymatic treatment, but no degradation was found with the enzymes given separately. The intravenous administration of the enzymes led to significant decreases in DNA and proteins from rat serum. No antitumor effect was observed in immunodeficient mice treated with the enzymes given separately. In contrast, the animals that received both enzymes exhibited a marked growth inhibition of tumors, 40% of them having pathological complete response.
Conclusion: This study demonstrated that systemic treatment with DNAse I and a protease mix in rats decreases DNA and proteins from serum and that this treatment has antitumor effects. Our results support the hypothesis that circulating DNA could have a role in tumor progression, which can be offset by depleting it. Further studies are needed to prove this concept.

Key words:*systemic antitumor treatment, DNAse I, protease mixture, trypsin, chymotrypsin, papain*

Ključne riječi: *sistemski protutumorski tretman, DNAza I, proteazna mješavina, tripsin, kimotripsin, papain*

SENTIMAG BIOPSIJA ČVORA ČUVARA U POŠTEDNOM KIRURŠKOM LIJEČENJU KARCINOMA DOJKE- PRELIMINARNI REZULTATI

SENTIMAG SENTINEL LYMPH NODE BIOPSY IN BREAST CONSERVATIVE SURGERY- PRELIMINARY RESULTS

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Uvod: Segmentektomija i biopsija limfnog čvora stražara zlatni su standard kirurškog liječenja ranog raka dojke (klinički i radiološki cT1-2,c N0). Kao zlatni standard obilježavanja limfnog čvora stražara koriste se tehnecij i/ili patent blue modrilo. Čestice superparamagnetskog željeznog oksida (*superparamagnetic iron oxide*, SPIO) od nedavno se koriste kao unutaroperacijski nanočestični obilježivač limfnog čvora stražara koji se odstranjuje pod kontrolom SentiMag detektora.
Cilj: Odrediti učinkovitost SPIO obilježivača limfnog čvora čuvara u kirurškom liječenju ranog karcinoma dojke te usporediti podatke sa zlatnim standardom, odnosno tehnecijem i/ili patent blue modrilom.
Materijali i metode: Prospektivno smo bilježili demografske podatke o bolesnicama, histologiju tumora te označenih i neoznačenih limfnih čvorova. U 128 bolesnica učinjena je biopsija limfnog čvora stražara u aksili detektorom SentiMag. Tri bolesnice su isključene, jer je konačan patohistoloski nalaz bio *carcinoma ductale in situ* (DCIS).
Rezultati: Limfni čvor stražar je pronađen u 119 od 125 bolesnica (95.2%), pozitivne limfne čvorove su imale 24 bolesnice (19.2%), makrometastaze 2 (1.6%) i mikrometastaze 1 bolesnica (0.08%). Od 30 pozitivnih odstranjenih limfnih čvorova, obilježenih je bilo 24 (80 %). Prosječno su po bolesnici izvađena 2,3 limfna čvora.
Zaključak: Mogućnost otkrivanja limfnog čvora stražara SentiMagom usporediva je s dosad objavljenim podacima i zlatnim standardom. Prednosti metode su lakše rukovanje i minimalna logistika.

Key words: *SentiMag, Sienna+®, superparamagnetic iron oxide, early breast cancer*

Ključne riječi: *SentiMag, Sienna+®, superparamagnetski željezni oksid, rani rak dojke*

DEPRESIVNI POREMEĆAJ KOD OSOBA STARIJE ŽIVOTNE DOBI

DEPRESSIVE DISORDER IN THE ELDERLY

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Cilj: Utvrditi učestalost pojave depresivnog poremećaja kod osoba starije životne dobi ovisno o životnom okruženju (Dom za starije i nemoćne osobe ili obitelj ispitanika), te utvrditi stupanj depresivnog poremećaja kod osoba starije životne dobi koji žive u krugu svoje obitelji i osoba koji su smješteni u Domu.
Ispitanici i metode: U istraživanje je uključeno 100 ispitanika starijih od 70 godina. Ispitanici su bili odijeljeni u dvije skupine: osobe smještene u Domu i osobe koje živi sa svojim obiteljima, od kojih svaka uključuje po 50 ispitanika. Podaci su prikupljeni putem općeg upitnika i dvije ocjenske skale (Skala za procjenu težine bolesti i Gerijatrijska skala depresije). Opći upitnik je dizajniran za potrebe ovog istraživanja i prikupljanje demografskih podataka ispitanika.
Rezultati: Rezultati t-testa pokazuju da postoji statistički značajna razlika (p<0,05) u ozbiljnosti depresije kod ispitanika koji žive u Domu u odnosu na one koji žive kod kuće s obitelji.
Zaključak: Stariji ljudi koji žive u krugu svoje obitelji imali su manje izražene simptome depresije u odnosu na osobe koje žive u Domu .

Ključne riječi: *depresija, gerontologija, obitelj, ustanova, životno okruženje*

Key words: *depression, gerontology, family, institution, living environment*